ANCIENT RACES OF THE DECCAN

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by

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Preface

It is a matter of regret that the *Ancient Races of the Deccan* comes out now as a posthumous publication even though my late lamented husband sent the manuscript of the book to a publisher as early as August 1966. After his death in March 1969, I had to withdraw it from the publisher to whom it was first given and entrust the work to the reputed oriental publishers Munshiram Manoharlal of New Delhi. I am indeed thankful to Shri Devendra Jain of the firm for readily accepting the task of publishing it.

Any author will always like to make corrections, verification of material data and final retouches at the time of proof-corrections. Unfortunately, as it is obvious, the book did not pass through this vital stage; as a result, despite my best endeavour, some errors are likely to creep in, for which I have no other course left but to crave the indulgence of my esteemed readers. Let it also be pointed out here that no attempt has been made to incorporate the accounts of new finds or researches that may have taken place in very recent years. But I think that the data and the main conclusions of the book still remain unaffected.

Calcutta
25th November, 1971.

Renuka Sarkar

Acknowledgements

My THANKS are first of all due to Professor Nirmal Kumar Bose, formerly Director, Anthropological Survey of India, now Commissioner, Scheduled Castes and Tribes, Government of India for his kindly offering me all facilities to study the human remains from Brahmagiri, Lothal and Maski; to Mr. A.W. Khan, Director of Archaeology and Museums, Andhra Pradesh, thanks are also due for his kindly allowing me to study the human remains from Piklihal and Yeleswaram. Thanks are also due to Professor A.R. Kennedy of the Department of Anthropology, Cornell University, U.S.A., for many helpful suggestions through correspondence. Acknowledgement is also due to the Anthropological Survey of India for lending the blocks printed on plates VI to XVI of this book.

11th August, 1966. S. S. SARKAR

Yet man desires to be more than man, to rule
His world for himself.

* * *

Out of place, out of time,
Clambers to the crown of the rock, and stands there,
Tottering; then comes the steepling plunge down to earth,
To the earth where we are caged and mastered.

Sophocles in *Oedipus Rex*

Author's Preface

THIS BOOK is an attempt to throw some light on ethnic problems of the Deccan, based upon human skeletal remains excavated therefrom. In this context, the present study is a companion of my previous work *Ancient Races of Baluchistan, Panjab and Sind* (1964). I tried to throw therein some light on the Indo-Aryan problem and suggested the use of the term Indo-Caspian instead.

In pursuance of the problem, the area of enquiry has been extended up to Lothal in Gujarat in the present volume. Unfortunately, the report on Lothal human remains has not yet been published, and I had to satisfy myself with only a summary of the report, which I completed in March, 1962. In his preface to the Late Dr. Subba Rao's *The Personality of India,* Sir Mortimer Wheeler wrote in July, 1958: "It is most earnestly to be hoped that the next year or two will see an acceleration in the matter, *always with the thought that unpublished excavation amounts to the destruction of evidence.*"[1] It is a matter of regret that there has only been a deceleration in the matter!

Luckily, however, the Deccan College Post-Graduate Research Institute, Poona, has kept the torch burning. Langhnaj, their earliest endeavour, has now been clarified by the excavations of Kennedy and Karve-Corvinus. Nevasa, which I have called "Little Harappa" in view of its cemetery, and Tekkalakota, showing evidences of an association with the Australoid Boyas, have greatly helped our understanding of Indian archaeology and anthropology. Excavations like the one of Tekkalakota are likely to provide immense opportunities pertaining to the prehistory of the autochthonous aborigines of this country.

Our knowledge in this respect, howsoever meagre it may be, is, however, dependent on solid facts of history. But the alleged discovery of a fossil pygmy skeleton in Baroda, as reported by Professor Nilakanta Sastri in his *A History of South India* (1966) has yet remained unknown. Sastri writes: "At Vadnagar in Baroda a fossil skeleton of a pygmy man, thirty inches in height, was discovered in 1935; in this skeleton we probably have the earliest representative of the Negrito in India". It is difficult to assume an adult human being,

[1]Italics mine

if human at all, thirty inches in height. In anthropology any individual less than 150 cm. in height is classified as pygmy in stature.

Similarly, very little is known of the discovery of a human tibia from Attirampakkam gravel-bed by Bruce Foote.

In course of writing the present volume, I have felt that archaeologists in this country are not yet so much interested in skeletal remains as they are with potsherds, for example. I tried to ascertain in certain cases as to what happened with the excavated skeletal remains, their whereabouts or the completion of their reports but I failed to obtain a scientific answer from any quarter. And if those facts were available some lacuna in our knowledge would have been filled up. Then, in many cases the reconstruction of skeletal remains is entrusted upon laymen who have hardly handled a skeleton before. The reconstruction of the skeletal remains should not be considered at par with pottery-washing and mending.

It is high time we set up an independent central body where all such works regarding excavation, treatment, reconstruction and final reporting of skeletal remains could be undertaken. The Anthropological Survey of India has so long been a store-house of almost all ancient skeletons but in spite of its twenty years of existence it is still very much in arrears so far as the scientific reports are concerned. As a result, separate study centres for such materials have grown up in the country. There are quite good organizations but all of them are not up to the standard in respect of scientific accuracy. Faulty reconstruction of skeletal materials cannot be always restored in case of fragile bones. The Deccan College, Poona, has proven its worth by inviting foreign scholars from abroad but I believe they were more engaged in studying the skeletons than their reconstruction. While such centres are welcome, there should be a central co-ordinating body. The Archaeological Survey of India instead of quietly transferring its responsibility to its sister Survey should take the lead in the matter.

Another fact, which I noted in course of studying Brahmagiri and Lothal skeletal remains, was that the total number of excavated skeletal remains was never sent to me. In both cases a few were found missing. A few years ago, I learnt that no record of a few skulls excavated from Pataliputra and lying at the Patna Museum could be traced. This is again the fault of long, uncared for storage at different places. The number of excavated skeletal remains is not always large, and if this limited number is further depleted

either in transit or in storage, it is extremely regrettable. Further, one would wish to know what happened to those missing skeletal remains.

On the other hand, controversies regarding the builders of a particular culture are afloat in this country. I admit that physical anthropologists are not always capable of identifying skeletal remains correctly, but the eloquent idea of hybridization, as is often said regarding the skeletal remains from Mohenjodaro, should now be changed. The rate of hybridization, as could be said from studies of living populations, appears to be rather low in a stable community. Among immigrants it depends upon two main factors : their number and the availability of local women. Other factors, like cultural differences, language, etc., also play their roles.

The population of Mohenjodaro and Harappa has been estimated variously between 35,000 and 40,000 with a very high density of population per acre. And what proportion of it is represented by the few skeletal remains, specially at Mohenjodaro? To assess a culture in all its entirety we must know the sex ratio of the then population. Why do we find a higher frequency of female and child skeletons at the Harappa Cemetery, Stratum I? Was there a surplus of females? Then we would like to know the longevity of the builders of a culture. The skeletal remains, if carefully studied all through from the field to the laboratory, are likely to furnish us with many information about burial customs. The physical anthropologist should not be merely content by identifying the ethnic affiliation but must also attempt to study them from all biological aspects. Nothing is known of palaeopathology in this country, but with my little experience, I have noted a few cases of pathological affection in a few Brahmagiri crania. Lothal and Burzahom have provided a few instances of trepanation of the skull, and only an expert palaeopathologist can describe how far the two trepanning processes are alike.

Prehistoric skeletal remains are also the best material for answering questions on environmental changes if a good chronological sequence of the excavated finds is available. This might provide information about evolutionary changes as well. Changes in the dentition depending on food occur rather quicker than any other bone. These might produce changes in the whole masticatory apparatus and the temporal bone of the skull. We should, therefore, concentrate our studies more for such biological information than simple ethnic affiliation only.

Physical anthropology entails a hypothesis regarding the possible origin of the Dravidians. Sir Arthur Keith (1935) pointed out their evolution from the Veddids or Australoids autochthonously. Subsequent researches also bear him out. Unfortunately, Edger Thurston's voluminous works on south Indian anthropology have not been fully utilized for the elucidation of ethnic affinities of the peoples of the Deccan, but therein lies a mine of information on problems of hybridization and micro-evolution. South India has no active centre of anthropological studies; individual studies have, however, earned distinctions. Related to the present study, one has to refer to Wheeler's commendation of the late Dr. M. H. Krishna's study in his introduction to the Brahmagiri excavations report.

Time is thus ripe for the establishment of a central research organization, which will keep a record of all skeletal remains excavated from different parts of the country. It will be a clearing house for all such finds since they are no less valuable than other antiquities. It should undertake an integrated study of all branches relating to study of ancient skeletons; it should have within its purview projects for exploring the remains of Early Man in India. Exhibition of the skeletal materials in the various local museums should also be undertaken. The common man has no idea as to how far an ancient human skeleton varies from that of his own. The Anthropological Survey of India would have been the best body to look after such programmes; of course, it is just a hope.

Calcutta S. S. SARKAR
14th August, 1966

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CHAPTER ONE

The Western Zone

THE WESTERN ZONE of India, comprising Langhnaj, Lothal, etc. towards the north, to Nevasa, Chandoli, etc. on the south appears to form a continuous culture zone, with occasional breaks in between from the Late Stone Age to that of the Iron. Langhnaj on the bank of the river Sabarmati has yielded remains of Late Stone Age man; Lothal is contemporary (Ghosh, 1965) with Harappa, while Nevasa and Chandoli, without their association of any Harappan script as found at Lothal, appear to show some similarity in cultural traits which may be Harappan in origin. The C–14 dates from Nevasa and Chandoli point to about 1100 B.C., which is immediately posterior to that of the arrival of the Indo-Caspians (*ca.* 1500 B.C.) but much later than that of the Harappans (*ca.* 2500 B.C.). As such, there was sufficient time for the diffusion of the Harappa culture into southern India.

The Deccan College Post-Graduate and Research Institute, Poona, has been the chief sponsorer of the protohistoric studies in the western zone. The pioneers have been Professors H. D. Sankalia and Iravati Karve, who since 1941 began their hunt for Late Stone Age man in the sand dunes of the Sabarmati valley and succeeded in discovering the first lot of human remains in 1944-45. They have also been able to infuse their spirit of research and knowledge among a large number of their students, who have already produced many valuable works, the most brilliant of whom was the late Professor B. Subba Rao.

1. LANGHNAJ

The discovery of the first skeleton of the Late Stone Age man at Langhnaj in February, 1944 by Sankalia and Karve is a landmark in the history of the quest for early man in India. The Deccan College Research Institute of Poona had been after it since 1941.

Langhnaj is located in the Mehsana Taluk in northern Gujarat in the Sabarmati river valley. Thirteen skeletons were discovered

between 1944-59 while skeleton no. XIV was discovered by Karve-Corvinus and Kennedy (1964) in 1963. The excavations by the above two authors have not only raised new problems in the archaeology of Langhnaj but also offered a clearer picture than has hitherto been obtained from the earlier reports. Their discoveries of a knife of pure copper, the absence of any "buried soil" of Zeuner, and the presence of pottery in all layers are significant enough for a revision of the archaeological chronology of Langhnaj.

The skeletons were found from a 225 feet high mound known as Andhario Timbo not far from the Langhnaj Railway Station. They were found between the depths of 2 to 6 feet below "the surfaces of the crest and the slopes of the mound".

Contracted burial with the body tied up in a close compass was the method of disposal followed in the majority of the cases, but in some, a prior process of exposure appears to have been followed. Karve (Ehrhardt and Kennedy, 1965) described them as follows : "simply putting together the skull and the long bones near it"; "remains of a skull on the top of a few long bones", etc. There were no signs of burning in the human bones.

Ehrhardt (1960) in a highly illustrated paper has sought to prove that the large number of breakages on the Langhnaj crania was intentionally made fractures and to this Karve-Corvinus and Kennedy (1964) remark as follows : "While no pit line was discernible, it is obvious that this skeleton, as well as the ones discovered earlier, reveal the existence of true burial customs among the ancient inhabitants of Langhnaj. The authors do not support the view that these skeletons were thrown haphazardly into the ground subsequent to some battle or traumatic event as has been suggested by another researcher. Nor can the fractures across the surfaces of the crania from Langhnaj be interpreted with any certainty to be the results of blows with heavy instruments. These cracks in the skulls, as well as in the post-cranial portions of the skeletons, are the natural consequences of the weathering of the osseous tissues within the micro-environment of the mound". The remarks of the above two authors are probably fully justified. Prehistoric skulls are replete with such cracks and much of it is due to the "micro-environment" of the locality. A broad distinction in breakages may however be made between crania found from earth-burials and those found from megaliths and urns. When the lands containing earth-burials are open to constant traffic the skulls show the comminuted pattern

of fracture, e.g. in the Lothal crania, while those from megaliths and urns appear to show various types of holes, cracks and breakages caused by the fall of boulders from stone slabs or cairn packings or due to the crushing of the urns.

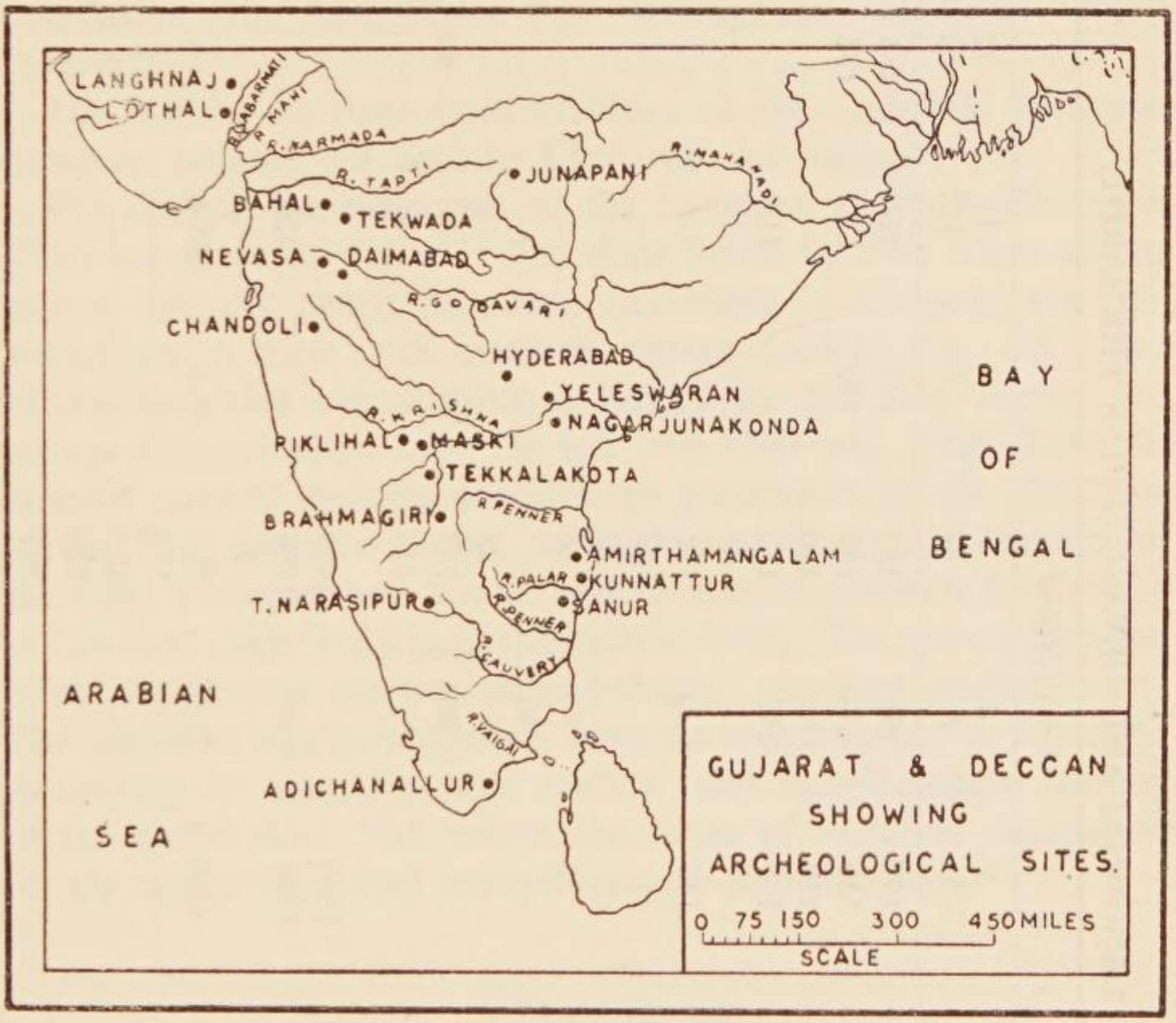

Fig. 1

Ehrhardt and Kennedy (1965) have studied the Langhnaj skeletons in detail—the former, the first 13 skeletons, and the latter, the skeleton no. XIV discovered by him in 1963. Ehrhardt is of opinion that "the Langhnaj skeletons mainly indicate traits which are characteristic of Mediterranids and Veddids, but which could also include other races". Kennedy has mentioned in his report McCown's opinion that the Langhnaj skeletons might well be compared with the Natufians of Palestine. In course of a lecture (17th April, 1964) at the Department of Anthropology, Calcutta University, Professor Kennedy remarked : "Results obtained to date make apparent the existence of a close genetic affinity linking the Late Stone Age populations of Belan Bandi Palassa and Langhnaj with the so-called aboriginal peoples surviving in these respective regions of

TABLE 1

MEASUREMENTS OF LANGHNAJ AND NEVASA (AFTER EHRHARDT)

	LANGHNAJ								*NEVASA*
Skull no.	1	2	3	4	5	6	11	12	10
Sex	?	*M*	*M*	*F*	*M*	?	*M*?	*F*?	*F*?
1. Cranial length	187	193	197	190	187	177	194	185	185 ?
2. Cranial breadth	124	132	136	136	137	130	127	132	134 ?
3. Basion-bregma ht.	—	—	120	—	130	—	—	—	134
4. Porion-bregma ht.	102	—	105	117	112	—	118	—	114
5. Nasion-prosthion line	—	—	—	—	67	—	—	—	65–70
6. Bizygomatic breadth	—	—	136	—	138	—	—	—	125
7. Nasal height	—	—	—	—	47	—	—	—	—
8. Nasal breadth	—	—	—	—	27	—	—	—	24
9. Orbital height	—	—	33	—	36	—	—	—	32
10. Orbital breadth	—	—	—	40	—	—	—	—	40
11. Inter orbital breadth	—	20	—	—	25	—	—	—	—
12. Bigonial breadth	—	98	—	80	107	—	—	89	102
13. Nasional gnathion line	—	—	—	—	114	—	—	—	113–118
Cranial capacity (*c.c.*)									
14. With ba–b	—	—	1380	—	1410	—	—	—	1330
15. ,, po–b	1222	—	1386	1430	1406	—	1420	—	1356
Indices									
1. Length-breadth	66·3	68·4	69·0	71·6	73·3	73·4	65·5	71·4	72·4
2. Nasal	—	—	—	—	57·4	—	—	—	—
3. Upper facial	—	—	—	—	48·5	—	—	—	—
4. Total facial	—	—	—	—	82·6	—	—	—	—
5. Orbital	—	—	—	—	90·0	—	—	—	—

the subcontinent today. Certain physical traits appearing in low frequency among the Veddah of Ceylon and which various students of this contemporary tribal group have cited as evidence of a phenotypes not ascribable to miscegenation, can be traced to a pre-Veddah population—the Late Stone Age 'Balangodese' of Belan Bandi Palassa".[1]

The Veddid or Australoid affinities of the Langhnaj man are, however, pointed out both by Ehrhardt and Kennedy.

The skeletal measurements of the Langhnaj skeleton (Ehrhardt, 1963) are given in Table 1. The skull found in 1963 could not be utilized for any metric purposes. According to Kennedy, the individual was a male with medium stature (166·52 cm; 5′5″) and robust muscular constitution as judged by the long bones. The stature was estimated from the left tibia (360 mm. long). Both the humerii showed the presence of large perforation of the olecranon fossae. They measure 12 mm. in height and 13 mm. in breadth for the right humerus, and 8 mm. and 13 mm. respectively for the left.

The skull suggested a long and narrow form. "The narrow occipital bone supports a massive mound-shaped superior nuchal crest". The dentition was completed in both the maxilla and the mandible. According to Kennedy, the metrical and morphological features of the above skull "fall within the range of variation determined for the earlier recovered human remains from the site".

2. LOTHAL[2]

Lothal is an extensive mound, 1900 feet long, 1000 feet wide, and 20 feet high. It is located in the village of Saragwala in the District of Ahmedabad in Gujarat. The site has yielded Harappan antiquities along with seals and sealings showing the characteristic Indus valley scripts and motifs.

[1]Kennedy (1965) has since then published his report on the skeletal remains from Belan Bandi Palassa ("Human Skeletal Material from Ceylon, with an analysis of the Island's Prehistoric and Contemporary Populations," *Bull. Brit. Mus. Nut. Hist., II,* 135-213).

[2]The Lothal human skeletal materials were sent to the present writer by the then Director, Anthropological Survey of India, for the purpose of study and report in May, 1961. The report was completed in March, 1962. It is awaiting publication by the Director General of Archaeology in India. A brief summary is presented here, since this unpublished report has already been available to the limited few who have utilized it for their own ends.

The human skeletal remains from Lothal comprised nineteen skeletons of which one skeleton (no. 12) was not made available to the present author. They were excavated between 1958-60 from a cemetery, yet all of them did not seem to be true burials. Three skeletons (nos. 1, 4 & 7) did not show any trace of skulls and some (nos. 1, 5, 16 & 19) were poorly represented by the various parts of the body. True burials were evident, as judged from the photographs of the pencil sketches, in 11 cases (nos. 2, 3, 6, 8, 12, 15, 17 & 18). There were three instances of joint burials (nos. 2 & 3, 8 & 9, and 13 & 14). The last two groups do not appear to be a true burial, and the bodies appear to have been thrown off in a huddled up manner. The joint burials are said to have been removed from a lower level than the other skeletons.

The total number of individuals appears to be twenty-one, the majority of whom is adult male. Fifteen of them are clearly adult males, one is a doubtful male, while the sex of one adult could not be ascertained. There are two young adults, one child, aged 9–10 years, and an infant. Compared with the above figures only fourteen skulls were available. The skull of the 9–10 years old child showed a square trepanned hole on the right temporal region. The trepanation was also examined by a distinguished Professor of Anatomy whose report has been included in the original report.

There is no specimen in the sample which can be clearly assigned to a female. Chatterjee and Kumar (1963) mention four female crania from Lothal in their brief report but since the numbers of the crania are not given it is difficult to verify them. Professor Kenneth A.R. Kennedy of the Department of Anthropology, Cornell University, who examined the Lothal skeletons while he was in India in 1964, is of the same opinion as the present writer. An extract of his letter dated 25th January, 1965 says: "I agree with you that there is no specimen in the Lothal series that can be clearly identified as that of a female. I was able to examine the collection while in Calcutta last year. Apart from skull no. 2, all seemed clearly to be males : no. 2 was more difficult to determine for sex, but I too felt the evidence favoured its inclusion with the males".

Out of the available fourteen crania, only nine were suitable for metric studies. Skeleton no. 15 belonged to a child with a trepanned skull on which much reliance cannot be laid due to its tender age and the doubtful pathological nature. Its cranial length was found to be 201 mm. (?)—a value too high for a child of 9–10 years.

TABLE 2

COMPARATIVE MEASUREMENTS OF LOTHAL CRANIA

Measurements	*DOLICHO–MESO CEPHALS* (71·0–75·9)									*BRACHY CEPHALS* (81·0 above)					
	LOTHAL — I									*LOTHAL —II*					
	2 *(M)*	8 *(M)*	9 *(M)*	11 *(M)*	*Mean*	*Sialk*	*Al Ubaid*	*Kish*	*Mohenjo-daro*	14 *(M)*	17 *(M)*	18 *(M)*	*Mean*	*Sialk IV*	*Lothal* 10*(M)*
Cranial capacity	1312?	1303?	1408?	—	1341·0	1505	1488	—	—	—	—	—	—	—	—
Cranial Length	189?	189?	194	180?	188·0	189·33	192·8	188	179·17	172?	180?	179	177	179·8	212?
Cranial Breadth	139?	145?	148?	133?	141·3	141·66	140·1	138	131·67	158?	146?	151	151·7	152	141?
Cranial Index	73·5?	76·7?	76·3?	73·9?	75·1	74·76	72·60	73·32	71·87	91·9?	81·1?	84·4	85·4	84·60	66·5?
Horizontal circum.	524?	537	538	—	533·0	534·66	—	522·3	518·67	525?	—	509	517	529·88	—
n–i length	—	181	179	169?	176·3	—	—	—	174·67	157	164?	163	161·3	—	205
n–pr. length	—	58?	66	68?	64·0	—	—	—	69·00	62?	—	67	64·5	—	72?
Bizygomatic Br.	133?	136	128	—	132·3	131·33	—	—	123·00	138?	—	137?	137·5	140·79	—
Sup. Fac. Index	—	42·7?	51·7	—	47·2	55·5	—	—	56·96	44·9?	—	48·9?	46·9	53·16	—
Nasal Ht.	—	—	43·5	50?	46·8	—	—	—	48·33	43?	—	44?	43·5	—	45?
Nasal Br.	—	—	25?	22?	23·5	—	—	—	22·50	29?	—	26?	27·5	—	28?
Nasal Index	—	—	57·5?	44·0?	50·8	49·73	—	—	45·63	67·4?	—	59·1?	63·27	48·30	66·2

The cranial measurements are given in Table 2 along with comparative data from other protohistoric sites.

The following statures (Table 3) of the Lothal skeletons could be calculated according to Pearson's formulae from the different long bones available for the skeletons.

The figures below indicate that the Lothal males varied between short (1620·5 mm.) and tall (1856·2 mm.) statures—the mean being 1721·4 (5′9″).

The crania and a few long bones showed a large number of fractures besides the comminuted fractures on the crania which is due to the super-incumbent pressure of the earth. The following crania,

TABLE 3

STATURES ESTIMATED FROM LONG BONES

Skeleton No.	*Long bone*	*Stature (mm.)*		Remark
7	Tibia	1856·2	(6′ 2″)	tall
10	Humerus	1652·0	(5′ 6″)	below medium
11	Femur and Tibia	1800·6	(6′ 0″)	tall
16	Femur	1677·8	(5′ 7″)	medium
18	Humerus	1620·5	(5′ 5″)	short

nos. 2, 8, 9, 11, 14, 17, and 18 showed variable fractures on them. The left side of the skull appears to be involved in the majority of cases. Skeleton no. 6 showed on its tibiae chopping marks, probably caused by a sharp weapon, while no. 11 showed fracture marks in the form of a large crack on the lower end of tibia as well.

It will be apparent from Table 2 that skull nos. 2, 8, 9 and 11 appear to be almost similar to one another. They appear to be similar to the dolichocephals from Sialk and to those from Al'Ubaid, Kish, and Mohenjodaro. They have been called Group I in the report. The other three, namely skull nos. 14, 17 and 18 (Group II) appear to be similar to the brachycephals from Sialk, while skull no. 10 shows some similarity with the autochthonous Australoid ethnic strain. This individual was below medium (5′6″) in stature with a cranial index of 66·5 (hyper-dolichocephalic) and a very flat nose with an index of 66·2. The high cranial breadth of 141 (?) mm. for this cranium is a point of interest not only for this specimen

but for Lothal as a whole. The greatest difference between Lothal and Mohenjodaro lies in respect of this character, while the mean cranial breadth of the Lothal Group I agrees very well with the means of Sialk dolichocephals and of Al'Ubaid. Correspondingly, the mean cranial breadth of Sialk brachycephals agree well with that of Lothal Group II. It will be obvious therefrom that the Lothal crania reveal a close relationship both in their long-headed and broad-headed forms with those of Sialk.

Lothal skeletons thus showed an overwhelming majority of males many of whom had not yet cut their wisdom teeth. It may be however that the third molar would not appear since its loss appears to be evolutionary phenomenon. The population does not indicate a normal population of an area. Then the large number of fractures of the skull and the tibiae, the three headless skeletons, and the careless nature of burials as seen in the huddled up skeletons, probably indicate that the place was the scene of a battlefield.

Three urn-burials have been discovered at Lothal. All of them contained fragmentary bones but their details are not known. One of the urn was "built into a brick structure and covered by a stone".

3. DAIMABAD

Daimabad, in the District of Ahmadnagar, Maharashtra, is located on the left bank of the river Pravara, a tributary of the Godavari. It is a 20 feet high mound on which, stone axes, microliths, plain and painted pottery, were found on the surface. Excavations showed two different methods of the dipsosal of the dead within the habitation areas. Three cultural phases have been identified and all of which have yielded human remains. It appears that adults were buried while children were disposed of in urns. Phase I yielded only one extended adult skeleton with its head towards the north. Phase II also yielded a complete skeleton showing north-south orientation. Phase III showed two skeletons, one of which "was completely despoiled", while the second was also oriented north-south. Bones below the knee were damaged and the skeleton was surrounded by the pits of 14 post-holes. Its hands, as seen from the photograph, were lain parallel to the body. No grave furniture was found along with the skeletons.

It is not certain from the brief report as to from which phase

the urn burials of the children have been found but figures show one each from Phases II and III. Three urn burials were excavated in all, one of which contained "skull, ribs and lower extremities of the body". The most interesting case however is that "probably of an older child". It has been said that as its "remains could not be accommodated in two urns, three urns were used" and that they "were distributed in all the three, which also contained bone beads".

If really the three urns contained only one skeleton it must have been preceded by exposure or by the dismemberment of the body. A detailed identification of the skeletal remains from the three urns is necessary before we can form a definite opinion.[1]

4. TEKWADA

Excavations at Tekwada in Eastern Khandesh, Maharashtra, also show the association of the urn burials and earth burials as seen in Daimabad. Here, too, the single earth burial discovered by Deshpande belongs to "an adult, 5 feet 2 inches long laid in north-south direction, with two pots, one of fine grey ware and the other of painted black-and-red ware, near its feet".

Of the three urn burials two are reported to contain "a few bones, presumably of children".

All the above four burials were found from the same period, namely period I B of Bahal chalcolithic culture. Bahal is located opposite to Tekwada on the left bank of the river Girna, a tributary of the Tapti.[2]

5. NEVASA

Sankalia, Deo and Ansari (1960) discovered during the years 1954–56 a large mound called Ladmod overlooking the river Pravara at Nevasa (19°34′ lat., and 75° long.) in the District of Ahmadnagar, Maharashtra. Cultural relics beginning with the early palaeolithic (Period I) to the Muslim period (Period VI) have been found. Of the six periods, the chalcolithic period (Period III) appears to be the best documented. Carbon–14 date for a sample of clean

[1]For reference see, *Indian Archaeology, 1958–59—A Review.*

[2]*Indian Archaeology, 1956–57—A Review.*

charcoal from the topmost chalcolithic layer appears to be 3106±122 years B.P. Sankalia *et al* thereby dates the beginning of the chalcolithic to about 1500 B.C. This is followed by 7 feet of occupation debris and the total duration of the period has been estimated to 500 years i.e. 1000 B.C.

Thirty-four burials were exposed during two seasons' work. Almost all of them were urn burials of children deposited under the floor of the house. The urns were "of grey fabric with rounded bottom and flared mouth kept face to face horizontally north-south". In two instances of grown-up children huge storage jars were used to cover the dead. The usual two-urn burial does not appear to have been strictly followed. Burial nos. 4 and 16 comprised only one urn while that of no. 26 was a triple-urn burial. In six out of nineteen urn burials Ehrhardt came across instances of more than one individual and in two instances fragments of adult bones were also found. She is of opinion that these adult bones "got into the urn accidentally along with the earth". Sankalia *et al* also mentions burial no. 6 as a multiple burial (on p. 24), which unfortunately was not examined by Ehrhardt and the contents of the urn thus remain unknown. Burials II and IV were clearly of multiple burials.

Only one urn (no. 17) was found without any bones which Sankalia *et al* refers as "symbolic burial". It is more probable that the bones were of very young children which disintegrated in course of time.

The only earth burial (no. 14) belonged to a child aged about 6 years. "It lay direct on the floor with a surface which was smoothed out with lime" (Ehrhardt, 1960). This skeleton could not be studied in detail because of its fragmentary nature.

Ehrhardt has studied in detail the skeleton from burial no. 10. It was found in a huge storage jar and "the dead individual was placed in the jars, while bones of the skeleton were still holding together". This means that the body was not possibly exposed before its burial in the jar. The body was lain on its back with the head to the left, "the knees slightly drawn up and turned to the left". The individual, according to Ehrhardt, was probably a woman of 20 years with a cranial capacity of 1330 c.c.—a value too high for the aboriginal females of India. The skull is broken in many parts and the frontal bone is completely missing. As such some of the measurements given by Ehrhardt are not really comparable particularly those concerned with the landmarks glabella and nasion.

The skull, after all, shows a dolichoid form which is also obvious from the measurements of the following skulls given by Ehrhardt.

	Cr. leng.	Cr. Br.	Cr. Ind.	Age
Burial I	157	116	73·9	2–3 yrs.
Burial 28	134	97?	72·4	6 mons.–1 yr.

Both the above crania are dolichocephalic and agree with the index of 72·4 worked out by Ehrhardt for the skull of burial no. 10.

The stature of the skeleton from burial no. 10, as calculated from the bones of the upper extremities, gives a "medium height if it is male skeleton and a great height if it is a female skeleton". The available extremities show a "massive skeleton" and the femur has a distinct pilaster. To the present writer the skull appears to be a male in view of the broad forehead (?), high vault, large face and teeth, the broad and muscular mandible, the comparatively thick cranial bones and the cranial capacity. The bigonial breadth has been found to be 102 mm., "which is very broad for a female skull" (Ehrhardt). It appears that the identification of the skull as a male is in harmony with the characteristics found in the mandible and the extremities, particularly the long radius and ulna.

The racial diagnosis of the above skeleton, according to Ehrhardt, indicate "characteristics of the primitive people in the jungles of the Deccan (Gondid race (?) according to von Eickstedt)".

A few fragments of child bones and animal bones, said to be extraneous in origin, were found along with the skeleton.

During the excavations of 1959–60 sixty-three urn burials of children were found. All were buried in double urns in the rim to rim position on the floor of the house.

Three adult burials were found of which two were earth burials showing fully extended bodies. The third adult was a female and the burial appears to be a variant of the jar burial, found in the case of burial no. 10 described before. The following description of the burial has been given in *Indian Archaeology 1959–60—A Review* (p. 28) : "The burial included five pots, of which four were grey urns with broken bottoms and the fifth covering the ribs, was in the Jorwe ware. The skull was placed in an urn".

It is likely that the body was, first of all, exposed to the elements otherwise such dismemberment of the bones of the skeleton could not have occurred.

Thirty-two urn burials, all of children, were discovered during 1960–61. Three earth burials, one an adult and two, "a pair of grown

up males" were also found. The urn burials were concentrated close to the river.

It is, however, surprising that so few adult skeletons have been found in comparison to the 95 urn burials of the children. A separate cemetery for them might have been in existence there but how to explain the few earth burials belonging to the same period?

6. CHANDOLI

Deo and Ansari (1965) discovered the chalcolithic site of Chandoli, located about 60 miles south-west of Nevasa on the river Ghod in 1957. The excavations reveal almost the same sequence of culture as that of Nevasa, both the sites being in Maharashtra. Twenty-four burials were exposed, and all of which, excepting two, were urn burials. They contained skeletons of children. The urns were horizontally placed rim to rim as at Nevasa and comprised one, two, and three urns as well. One urn was found in the vertical position. Eleven urns were found in the third layer of the black soil which could be associated with the first occupational layer of the site. The next layer(2) yielded ten urns while the topmost layer (1) only three. Two urns did not contain any bones which, according to Deo and Ansari "might have been either symbolic or those of newly born infants whose bones withered away in no time". The latter is more probable than the former as mentioned before (p. 11).

The two earth burials, nos. 16 and 24, from layer 2 have been mentioned as adults by Deo and Ansari (p. 18) while Malhotra, who has reported on the human remains mentions no. 16 as belonging to an adult male, aged 20–25 years, while no. 24 to be a child aged 2–3 years with a query. No skull was found in the latter case. Malhotra mentions some complete long bones and epiphysis of some of them "missing" as well. He also mentions "few carpals" the ossification centres of which appear between one and 12 years. A nearly correct age could have been estimated from a study of these bones. It might have been an older person since the carpals could only be found after such a long time in the soil after their complete ossification which occurs much later in life. No photographs or measurements of the long bones have been given.

Burial no. 16 is peculiar in having the lower portion of the body, below nearly half of the femur, missing. The same has also been

reported for burial no. 24 by Deo and Ansari (p. 18). They say that "the lower extremities were cut off". But as mentioned above no skull was found for this skeleton. Malhotra's identification list does not also show any bones of the lower extremity excepting the femora for which he mentions that "in both the femora the upper epiphysis are missing. It is not known whether the femora were complete in their entire diaphyseal shaft or "cut off" as in burial no. 16. No such deliberate removal of the lower part of the body is known from any other protohistoric site in India. Along with the possibility of deliberate cutting off of the limbs, for which evidences should be present in the bone itself, acheiropodic individuals may also be present.

Malhotra's detailed study of the skull and the post-cranial bones reveals that the individual was long-headed (index—64·97?), high-vaulted person with well-developed musculature. Both the skull and the post-cranial bones, which were used for the estimation of the stature, have been subjected to so much reconstruction that the measurements are not comparable with other data.

The following measurements will give an idea of some important dimensions of the skulls.

Cranial length	—	197 mm.
Glabella-inion length	—	193 mm.
Nasion-inion length	—	188 mm.

The left humerus of the femur shows a large triangular foramen on the olecranon fossa, while the right one probably shows (see his figs. 78, 26) a small hole. This character is found in very high frequency among the Vedda of Ceylon (Martin, 1928). A comparative study of this character in the Indus valley skeletons has been already made by Sarkar (1964).

Malhotra is of opinion that the Chandoli skull "shows closer affinities with Mohenjodaro skulls (nos. 6, 7, 9, 10, 19 and 26) which ..... are Mediterranean in characteristics".

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CHAPTER TWO

The Northern Zone

THE NORTHERN ZONE has a few important sites yielding human skeletal remains, Junapani, near Nagpur, being the northernmost site of this area. Other sites are Nagarjunakonda, Yeleswaram and a number of megalithic sites in the former Hyderabad State. The reports on the human remains from Nagarjunakonda and Junapani have not yet been published; a report on the human skeletal remains from Yeleswaram by the present writer is included in this chapter.

1. JUNAPANI

Junapani, located about 11 km. north-west of Nagpur along the highway to Katol, is known since 1867, when some of the cairn-circles were explored. It has an area of about 1/6 of a square kilometre and contains more than 150 cairn-circles, all of which are essentially of the same type. They form the "northern fringe of their distribution in the Peninsula."

Three megaliths each comprising a circle of undressed boulders having an external diameter of 15–16 metres were excavated during the year 1961–62.[1]

In megalith I, an irregular shallow pit, $8{\cdot}80 \times 3{\cdot}50$ m., with the longer axis to the east-west, was found. Funerary deposits comprising pottery, iron objects and gold ornaments were found on the floor of the above pit and also in the clay-filling above. "A stone pestle along with some iron objects was also found in the rubble packing. Three ancillary pits in the southern half of the circle contained human and animal skeleton remains." The human skeleton was represented by the "crushed part of the skull and some long bones" while the animal bones by some of the "Equidae family." Some pots, 44 carnelian beads, of which 24 were etched in white, were also found towards the head of the human skeleton.

No bones were found in Megalith II. Fragmentary skeletal remains were found from Megalith III but a gold bangle could be associated

[1] *Indian Archaeology, 1961–62—A Review*, p. 33.

with a pair of radius and ulna. The funerary objects include "pottery, gold ornaments, a silver stand, copper and iron objects." The preliminary report also points out the similarity of the iron objects with those obtained from Adittanalur.

2. HYDERABAD

A. General

In this section Hyderabad has been used to denote the former princely state under the suzerain of the Nizam. The State possessed probably the largest number of cairn burials in the Deccan. Hunt (1924) estimated that their number "cannot be far short of a million." He also pointed out "that the people who made these cairns held full control of South India for a prolonged period", a period which he called the "cairn period".

Meadows Taylor (1852) also mentioned the large number of cairns in Hyderabad. "They prove to be entirely cairns, and in far larger numbers than I had any conception of, or than exist in the Shorapur country". Taylor (1862) in another study limited the "most numerous" number of megalithic remains to the south of a line connecting Belgaum on the west to Vishakapatnam on the eastern coast.

Hunt opened ten cairns at Bowenpilly, and twenty-four at Raigir. Because of the good condition of the pottery outside the cists at Raigir, the latter was chosen for detailed exploration. All these cairns were of a variant form in having a huge granite slab almost filling the space within the stone circle. The cist cavity was under the slab.

At Raigir, the "commonest body position is with the knees to the chin and the head to the north". Extended skeletons were found in three out of the twenty-four cairns. One urn burial of a little girl was found in one of the cists (R XIII). This type of burial was also found by Meadows Taylor at Chickunhulli, Sholapur, which he termed "Urn-Cairns". The urns were kept on the floor of the cairn, about 6 feet long and 5 feet broad, made of slabs of stone. This is therefore a combination of urn and cist burials, and almost similar to the practice found in the cists at Sholapur by Taylor. This similarity in the disposal of the dead is also supported by the practice

of human sacrifice found, first of all, by Taylor in the cairns of Sholapur, and later supported by Hunt from the cairns of Hyderabad.

Out of twenty-four cairns opened by Hunt the practice of human sacrifice was evidenced in four. Three were extended burials while the fourth was an urn-cairn of a little girl, already mentioned. In each case there were two victims, whose "heads had been cut off and thrown into the cist, followed by the bodies". These skeletons were found in a heap. The extended burials lay on their back with the head to the north.

Urn burials are rare in Hyderabad, and in most cases, particularly at Motamuree, "burnt bones seem to be the rule".

B. Skeletal Remains

Hunt was able to give cranial indices of a few skulls (see Table 4). Three skulls appeared to him "to have an index of 75" while one was reported to have an index of 76. One of the victims had an index of about 90. The stature of the cairn builders, particularly that of the three extended burials, was found to be about 5 feet 6 inches. It has also been reported that they were not as massive as the victims, sacrificed in the cairns.

Kennedy (1964) has studied the human remains excavated by Hunt who had deposited them with the British Museum. Out of about twenty-two skeletons unearthed by Hunt, Kennedy was able to locate six calvariae but they could not be assigned to the cairn numbers mentioned by Hunt. Three were assigned the number R 26, a number which does not occur in Hunt's paper, but mentioned

Table 4

MEASUREMENTS OF RAIGIR CRANIA (IN MM.)

Specimen Nos.	116	117	118	119	120	121
Sex	F	M	F	M	F	F
Cranial length	160	195	165	185	178	189?
Cranial breadth	—	124	—	140	140	138
Min. frontal breadth	94	96	91	99	—	—
Max. circumference	—	—	—	520	—	543
Cranial index	—	63·59	—	75·68	78·65	73·02?

Specimens Nos. 116–118 were adults while the other three were young adults.

by Codrington (1930)[1], while the other three had no number. Kennedy was able to obtain radio-metric analyses and palaeo-serological tests of the six calvariae. The radio-metric assay showed the amount of uranium oxide per million varying between nil to 31±2. Four samples varied between 8±2 and 15±2. Serological analysis showed the probable ABO blood group of the six persons as A—3; B—1; AB—2.

Kennedy points out that the Raigir population was not "phenotypically homogenous" and "is most similar to the so-called 'Mediterranean' population".

3. NAGARJUNAKONDA

Nagarjunakonda is located in the Palnad Taluk of the Guntur District, Andhra Pradesh, on the right bank of the river Krishna. The valley of Nagarjunakonda has been a rich archaeological site containing many historical monuments. It is now completely submerged due to the construction of the Nagarjunasagar dam across the Krishna. Prior to the construction of the above dam the Archaeological Survey of India salvaged all the archaeological wealth of the valley. The actual discovery of the site was made in 1926 by Mr. A.R. Saraswati of the Department of Epigraphy of the Archaeological Survey of India.

The brief reports of Nagarjunakonda excavations, as published in the different yearly issues of *Indian Archaeology—A Review*, besides a recent publication (Sarkar and Mishra, 1966) are the sources of the present report. The site however is important in showing many variations in the methods of disposal of the dead from the neolithic to the megalithic period.

Six neolithic graves were exposed during 1957-58 towards the southern part of the valley. They were extended burials but the "skeletons did not show proper articulation". This possibly means that the burials are a secondary process after the primary one of exposure. The neolithic habitational zone also yielded "a damaged

[1]This may be a printing mistake (XXVI for XXIV) since Codrington's description agrees with Hunt's statement about the internal space within the cist. On the other hand, Beck (1930) who examined the beads excavated by Hunt mentions a grave number XXVII; XXVI is again a possibility. But how the British Museum got the Arabic numbers?

urn-burial of a child" in 1956-57. This finding is important in urn-burials having a neolithic association. So far the oldest source of urn-burials in India was Harappa.

In 1956-57 a megalith containing remains of three individuals was discovered from the slopes of Chula-Dhammagiri hill. It was a stone-circle with cairn packing within, covered with multiple cap-stones. Longhurst in 1928 excavated two or three megaliths of this group.

An extended and partly-disarticulated adult skeleton was found from "an untrimmed cairn-circle" (external diameter—24′10″) in 1957-58. The skeleton was lying in an oblong pit at a depth of 6′5″. It was accompanied by some iron objects, pottery, a javelin—5′9″ long, and a tanged dagger.

In 1959-60 eighteen megaliths were "located in a cluster in close proximity to the south-east corner of the Ikshvaku Citadel". None of the megaliths showed any port-hole. The peculiarity of some of these megaliths lies in their being individual repositories of the dead. This is very much apparent in Megaliths XIV and XV. The former contained "a fully articulated and extended skeleton, perhaps of an adult female" along with a large number of gold and silver ornaments. The other megalith also contained a "long extended and fully-articulated skeleton". A few megaliths did not contain any bones and they have been identified as macerating pits or inverted Tower of Silence. The megaliths of Nagarjunakonda therefore show two important variations : (1) the non-exposure of dead bodies prior to their being deposited in the megalith, and (2) that the megaliths are not always family vaults, as known in other sites, like Brahmagiri, Yeleswaram, etc.

Megaliths used as single graves are possibly associated with social status. The above two megaliths have been found very close to the Ikshvaku Citadel, and the gold and silver ornaments associated with one of them probably indicate the high social status of the dead.

The report on the human remains from Nagarjunakonda excavations has not yet been published.

4. A REPORT ON THE HUMAN REMAINS FROM YELESWARAM

The human remains from Yeleswaram, located on the left bank of the river Krishna opposite to Nagarjunakonda, were discovered

during the archaeological excavations of the above site by the Department of Archaeology, Andhra Pradesh, during the years 1961-63 (Khan, 1963). The human remains were studied at the laboratory of the above department during October-November, 1966 at the instance of the present Director Md. Abdul Waheed Khan for which my sincere thanks are due to him.

A. The Data

The examined skeletal remains from Yeleswaram 1961-63 are as follows :

(a) One urn-burial (no. 1/61) from below the *stūpa* (layer 6) in the temple site yielding the skeleton of a female (?) young adult.

(b) One megalithic cist burial containing three skeletons, one adult male (no. 2/61), one child (no. 3/61) about 3 years old, and one adult female (no. 4/61).

(c) One joint burial in which a male skeleton (no. 1/62) was laid upon that of a female (no. 2/62). Meadows Taylor (1852) found three instances of the above type of burial in a cairn at Jiwarji, and two in a cairn at Andola.

Burials (b) and (c) were discovered from Period I, layer 6, of the temple site.

(d) An adult male (no. 3/62) from a pit burial.

(e) An adult male (no. 4/62) from a pit burial.

(f) An adult female (no. 6/62) from a pit burial.

The above three skeletons were found from Period VI, layer 4 and as such they have been separately treated from the megalithic ones. Khan states that they belong to "early medieval" to "medieval" periods. Skeleton no. 3/62 was discovered in an inverted position while nos. 4/62 and 6/62 were buried in seated position (Khan, 1963, Plate XXXVII, A and B). Skeleton no. 4/62 showed marks of injury on the skull, which are described below. In the case of skeleton no. 6/62 only the right femur was found among the bones of the lower limb. A copper wristlet and a copper finger-ring were found on the body of the skeleton.

(g) An adult male (?) (no. 5/62) discovered from below the Buddhist enclosure wall (layer 6) in the temple site.

(h) A megalithic cist containing three skeletons, nos. 1/63, 2/63 and 3/63. The first one was an adult male while the other two

were adults but their sexes could not be determined. From the growth of the III molar teeth it appears that no. 3/63 is younger in age than no. 2/63.

Besides the above human remains i.e. from (a) to (h), the following remains from the earlier excavations (1955–56) at Yeleswaram were also examined. They have already been studied by Gupta and Datta (1962). These are as follows :

1. V. B. K. Meg. 4 Sk.4 (male ?)
2. V. B. K. Meg. 1 Sk.3 (male ?)
3. V. B. K. Meg. 1 Sk.12 (female?)
4. V. B. K. Meg. 1 Sk.7 (male)

B. The Skeletal Remains

A brief description of the Yeleswaram skeletal remains examined are given below :

No. 1/61—Urn-burial.

Skull ovoid complete with mandible, slight distortion on the right temporal and some deformity on the right parietal, all teeth of the upper jaw missing excepting the right first molar, malars dislodged from the orbital suture, zygomatic arches broken, skull bones are corroded, all sutures open, one wormian bone on the left lambdoidal suture, pteria spheno-parietal, orbits quadrilateral, upper margins sharp, pyriform aperture amblycraspedote, mastoids mediumly developed, parietal bosses prominent, basi-occipital not united, nasion broad and shallow, low vertical forehead, face broad, shows no alveolar prognathism, muscular impressions very weak, glenoid fossa very broad and shallow; one upper lateral incisor, found loose, shows weak form of shovel, the *in situ* first molar shows slight wear.

Mandible—complete with all teeth, left III molar much below the level of other molars, right incisors broken, symphyseal region shows deep groove, prognathism marked.

The skeleton probably belongs to a young adult female (?).

Long bones accompanying the skeleton are :

Femur (R & L); Tibia (R & L); Fibula (R & L);
Pelvis (R & L); Humerus (R & L) (perforation of the olecranon fossa in both);
Humeral heads not united; Clavicle 1 (Rt); and
Distal Epiphysis of many of the long bones not united.

According to the measurements (Table 5) this individual appears to be mesocranial (79·17), hypsicranial (81·55), acrocranial (103·01), platyrrhine (57·14), metriometopic (66·92), with a prognathic index of 86·32. The estimated cranial capacity according to Pearson's formula is 1290 c.c.

No. 2/61

Cist burial containing two other skeletons, Nos. 3/61 and 4/61. It was reported that slabs of stones from the capstone were removed from above the skulls.

Male adult, skull ellipsoid, supra-orbital ridge well-developed with two deep supraorbital notches, forehead extremely sloping, sutures united from bregma along lower half of the sagittal suture, and on the coronal suture from bregma to about half of the two lateral margins, endocranial sutures of the above corresponding areas completely fused, some amount of platycephaly noted in all the three crania, right side appears to have undergone some distortion particularly on the occipital and mastoidal regions, large mastoidal foramen on the right, muscle impressions prominent, left parietal region missing, nose appears to be prominent from the reconstruction, 6 teeth *in situ*, both right and left molars (I and II) and right II premolar very much worn out, palate broad and deep.

Skull bones very thin, possibly the individual belongs to an aged person, mandible very much distorted with only Rt III molar *in situ*.

This individual was a tall person (174·6 cm) with a long head (72·58 ?), hypsicranial (64·52), acrocranial (88·89), mesorrhine (48·08), eurymetopic (72·59) with an estimated cranial capacity of 1326 c.c. The prognathic index was 86·14. The femur was stenomeric (100·00) with a pilastric index of 110·7.

No. 3/61

Child cranium, ellipsoid in form, with a fragment of mandible and a few loose milk teeth. Skull shows 4 teeth *in situ*, two molars on each side, metopic suture open for about 9 mm. above nasion. Skull very much broken into bits though an outline has been possible to reconstruct. The vertical nature of the forehead is noteworthy.

No. 4/61

Adult female, skull ellipsoid in form, deformed towards the posterior end causing two large depressed areas on the two parietals, platycephaly evident, low forehead, broad nasal root,

large quadrilateral orbits, supraorbital ridges very slight, nasal root broad and shallow, all sutures open, mastoids well developed, face appears to be broad, basal portion of the skull missing.

Mandible very much fragmentary but reconstructed imperfectly, three right molars and left I and II molars *in situ.*

The cranical index has been found to be brachycranial (82·08), nose leptorrhine (37·74), and eurymetopic (70·42) transverse fronto-parietal index.

Post cranial bones found in association with 2/61.—Thoracic vertebrae–1; Lumbar vertebrae–2; Rib frags–5 ; Sacrum–1 ; Humerus (R & L) with perforation of the olecranon fossa in both; Radius (R & L); Ulna (R & L); Metacarpals–4; Clavicle (R & L); Pelvis (R & L); Femur (R & L) almost complete; Patella–2; Tibia (R & L); Fibula (R & L); Astragalus–2; Calcaneous–2; Tarsals–5; Metatarsals–5; Phalanges–6.

Post cranial bones with 3/61 *and* 4/61.—Adult bones: Humerus—Rt. with perforation of the olecranon fossa; lower end of left missing; Radius; Ulna; Pelvis—5 fragments; Femur (R & L); Tibia (R & L) lower end of another left tibia present; Fibula; Tarsals.

Post cranial child bones, all fragmentary, associated with 3/61 *and* 4/61.—Humerus (R & L); Femur (R & L); Tibia (R & L).

It is difficult to say regarding the platycephalic nature of the above three crania. All the three skulls show it and it is difficult to believe that they were so equally and symmetrically affected by the loose stones from the capstone. It may be something familial in nature.

Nos. 1/62 and 2/62 represent joint burial in a pit, bones of 1/62 having been found upon those of 2/62.

No. 1/62

No.1/62 is a male skull with mandible, facial portion missing but the detached maxilla shows 12 teeth *in situ*, root of left canine in socket, left central incisor and right lateral incisor and right III molar missing, dentine exposed as seen by pits on the cusps of the molars and premolar, palate deep parabolic.

Skull recovered in fragments but reconstruction possible, all sutures open, ovoid in form, vault high, glabella prominent as also the supraorbital ridges, forehead medium high and sloping, bulging occiput, very well developed mastoids, muscle impressions well marked, supramastoidal crests well developed as also the two temporal lines, inion marked.

The above individual was found to be tall (175 cm), long headed (72·73) with eurymetopic (75·74) transverse fronto-parietal index. The femur showed a strong development of the pilastric index (124·0)

No. 2/62

Female skull recovered in fragments but reconstruction possible, ovoid in form, facial region completely missing from below the narrow sloping forehead, parietal tubersities prominent, basal part absent as also the lower part of the occipital bone and of the temporals, mastoids show large mastoidal foramina, all sutures open, muscular impressions not prominent, pyriform aperture amblycraspedote.

Fragment of the left ramus of the mandible present with I molar complete and the root of the II molar, cavity of the III molar present.

According to measurements this person was medium-statured (165·5 cm.) with mesocranial index (76·16). The femur was platymeric (80·00) with pilastric index of 100·00.

Post cranial bones.—Post cranial bones associated with the above two skeletons are given below. It appears therefrom that, of the two individuals, one was taller and robuster than the other.

1/62 *Tall and Robust*			2/62 *Other individual*		
Scapula frags	—	2	Humerus	—	2
Humerus	—	2	Left humerus complete with no perforation of olecranon fossa; distal end of Rt. humerus missing.		
(Rt. with a large olecranon fossa foramen)					
Ulna	—	2			
Radius	—	2	Radius	—	2
Pelvis	—	2	Ulna	—	2
Femur	—	2	Femur	—	2
Tibia	—	2	Tibia	—	2
Fibula	—	2	Fibula	—	2
Calcaneous	—	2	Calcaneous	—	2
Talus	—	2	A large number of fragmentary metacarpals, metatarsals, vertebrae, and ribs, etc.		
Patella	—	2			
A large number of metatarsals, metacarpals, phalanges, ribs, and vertebrae					

No. 3/62, PIT BURIAL

Male skull with mandible in a fairly good condition excepting that a fragment of the left occipital towards the base of the skull is missing.

Ellipsoid in form, all sutures open, occipital bulge noticeable.

Medium high vault, pre-auricular region greater than post-auricular, prognathus, mastoids and supramastoidal crests very well developed, tymphanic opening long oval in outline, splayed out posteriorly, pteria narrow spheno-parietal on both sides.

Occipital region pentagonoid in outline, inion prominent.

Medium high forehead, supraorbitals moderately developed, orbits quadrilateral, malars prominent, nasal bones crushed flat, pyriform aperture amblycraspedote, prognathus, teeth irregularly fixed at the laboratory.

Palate deep, U-shaped, left central incisor slightly shovel-shaped, 13 teeth *in situ* and 3 loose ones.

Mandible No. 3/62.

Complete, 13 teeth *in situ* and one loose left (?) central incisor, two teeth above the symphysis appears to have fallen ante-mortem as judged from the absorbed sockets, molars and premolars very much worn out, pits and circular areas on molars including the III, also present in maxillary teeth, gonial angles turned outwards specially of the right side.

This individual was mesocranial (75·43), euryene (45·45) upper facial index, platyrrhine (56·25) nose, and eurymetopic (69·70) transverse fronto-parietal index.

Post cranial bones.—Vertebrae—20, Sacrum—1, Humerus—2, Radius—2, Ulna—2, Pelvis—2, Femur—2, Tibia—2, Fibula—2, Patella—1, Talus—1.

Fragments of ribs, metatarsals, metacarpals, phalanges are also present.

No. 4/62, PIT BURIAL, LAYER 4

Male skull with mandible, skull recovered in fragments but reconstruction possible excepting the right fronto-parieto-temporal region extending up to the base of the skull, lower part of the occipital including the foramen magnum missing, right mastoid broken.

Skull ellipsoid, occipital bulge prominent, sagittal suture partially fused, shows a deep cut-mark (26 mm. long × 6 mm. broad) on the left parietal and an oval hole (22 mm. × 15 mm.) on the right lambdoidal suture, probably marks of injury, sagittal suture closed endocranially but ectocranially open at its lower region.

High vault, forehead high, occiput bulging, right pterion region fused completely, mastoid and mastoidal crest prominent, prognathism slight, muscular impressions marked.

Supraorbital ridge prominent, forehead medium broad, orbits quadrilateral, nasal aperture amblycraspedote, malars prominent, nasal bones broken, right orbit loosely joined, shows interspace.

Occipital region pentagonal, oval hole (injury?) on right lambdoidal suture, left lambdoidal suture fused ectocranially.

Basion and opisthion missing, palate very deep U-shaped, 13 teeth *in situ*, teeth eroded, dentine exposed, two right incisors and left central incisor missing, III molars, almost of the same size as I and II, show marked wear.

Mandible complete with 16 teeth *in situ*, all teeth including III molars show marked wear, gonial angles turned outwards.

The head form of this person was dolichocranial (74·87) with a transverse fronto-parietal index of 66·43 (metriometop).

Post cranial bones show a very robust individual. They are, however, incomplete and fragile.

No. 5/62, PIT BURIAL, LAYER 6—DISCOVERED BELOW THE BUDDHIST ENCLOSURE WALL

Fragments of an adult skull, could be joined to form a calvarial shape, no measurements possible, thick skull bones indicate probably a male, all sutures open.

Mandible present in two fragments, one of left side with 4 teeth (2 premolars and 2 molars) *in situ* and the other of the right with 3 teeth (II premolar and I and II molar) *in situ*, very much worn out, III molars cut as seen from socket space.

Post cranial bones.—Fragments of pelvis, femur, tibia, scapula, humerus, and fibula. Appears to be a very robust person.

No. 6/62, PIT BURIAL

Skull very fragmentary, an outline of the calvaria could be made by joining some bones, base missing as also the right and left temporals and the lower part of the occipital bones.

Ovoid skull, no trace of any suture except the right lambdoid, occipital bulge prominent, pre-auricular region greater than post auricular, face partly intact, low vertical forehead, orbits with sharp margin, glabella prominent, left orbit almost complete, palate small, 4 teeth *in situ* on each side (2 premolars, 2 molars and socket of II molar) (left—2 premolars, 2 molars) wear medium, cusps with pits on both the premolars and molars of both the jaws.

Mandible complete with 15 teeth, left central incisor missing, III molars prominent, appears to be a female.

The cranial index of this individual was hyperdolichocranial (65·17) with eurymetopic transverse fronto-parietal index (83·62).

Post cranial bones.—Humerus—2, Radius—2, Ulna—2, Scapula—2, Clavicle—2, Pelvic fragments—2, Femur (Rt.)—circumference at centre—77 mm.

Nos. 1/63, 2/63 and 3/63 described below are all found together in a cist.

No. 1/63

Adult skull with mandible, compressed flat due to superincumbent pressure, spheroid in form, metopic suture persisting from nasion to bregma, mandible found attached to the skull but very much broken, left I—III molars present, those of the right crushed, pteria sphenoparietal, mastoids and supramastoidal crest well developed, muscular impressions more rugged than those on the fragmentary remains of the other two individuals, appears to be a male.

No. 2/63

Distorted fragments of very thin cranial fragments in two parts; adult.

No. 3/63

Four fragments of cranium, thickness of skull bones almost similar to 2/63; adult.

Mandible of 2/63.—2 fragments, right horizontal ramus shows 6 teeth (2 molars, 2 premolars, canine and lateral incisor) *in situ*, socket of III molar broken but discernible, left horizontal ramus shows no teeth.

Mandible of 3/63.—Almost complete, shows 10 teeth *in situ* (Rt.—2 molars, II premolar, canine and lateral incisor; Lt.—2 molars II premolar, canine and lateral incisor), III molars appear to have cut since alveolar grooves are seen. It is possible that 3/63 is younger than 2/63 because of the eruption of the III molar in the latter, wear of teeth similar in the two, I molar shows dentine pits in both, tooth smaller in size in 2/63 than 3/63.

Post cranial bones.—Three pairs of femora—classifiable in pairs according to the formation of linea aspera and hypotrochanteric fossa, which is however variably present in all.

Circumference (mm.) at the middle of the shaft.

I pair—Rt (75), Lt (72).
II pair—Rt (74?), Lt (81?).
III pair—Rt (84), Lt (87).

6 fragments of humerus
4 fragments of tibia
3 fragments of ulna (of 3 persons)
3 fragments of radius (of 3 persons)
1 fragment of fibula.

C. Skeletal Materials From Earlier Excavations (1955–56)

V.B.K. Meg. 4, Skull No.4, male (?)

Only calvaria, adult, no measurements possible, all sutures open, skull may be brachycranial, mandible fragmentary, *in situ* right 3 molars, 1 premolar and left 3 molars, heavily worn out specially the right molars.

V.B.K. Meg. 1, Skull No.3, male (?)

Calvaria—length 168 mm.; breadth 152 mm.; a large parietal foramen (5 mm. diam.) about 52 mm. above lambda to the right of sagittal suture, wormian bones present on lambdoidal (left) suture, may be brachycranial.

V.B.K. Meg. 1, Skull No.12, female (?)

Long oval—length 170 mm.; breadth 130 mm.; large parietal foramen similar to above skull towards the right of sagittal suture 32 mm. above lambda.

V.B.K. Meg. 1, Skull No.7, male

Skull complete without mandible, sphenoid in form, all sutures open, frontal bone sloping, parietal tuberosities prominent—asymmetry on right parietals.

Extremely sloping forehead, high vault, prognathus face, occiput vertical, plano-occipital, pre-auricular region greater than post-auricular, right mastoid rugged and well developed, muscular impressions prominent, inion marked, both pteria narrow spheno-parietal, tymphanic opening circular not splayed downwards as in other skulls.

Broad face, high sloping forehead, supraorbitals show continuous ridge, orbits quadrilateral, pyriform aperture amblycraspedote, malars very prominent, temporal lines prominent, alveolar prognathism marked (prognathic index—105·83).

Pentagonoid in outline, superior nuchal crest very rough, inion prominent.

Dentition lost but III molars discernible, glenoid fossa deep, palate broken but appears to be deep and parabolic.

TABLE 5

MEASUREMENTS OF CRANIA FROM YELESWARAM

	Urn	*One cist*			*Joint burial*	
Sr.	1/61	2/61	3/61	4/61	1/62	2/62
No.	*F*?	*M*	*Ch.*	*F*	*M*	*F*
1. Max. Cr. Leng.	168	186?	159	173?	187?	172
2. „ „ Br.	133	135?	130	142?	136	131?
3. n–i Leng.	158	169	—	159?	170	—
4. b–br. ht.	137	120?	—	—	—	—
5. Least Fr. Br.	89	98	—	100	103	—
6. Greatest Fr. Br.	108	—	—	127?	119	—
7. Bimastoid Br.	84?	—	—	—	93?	—
8. Bizygo. Br.	—	—	—	—	—	—
9. n–ba line	95	101?	—	—	—	—
10. pr–ba line	82	87?	—	—	—	—
11. n–pr. line	56?	67	—	64	—	—
12. Nasal ht.	42	52?	29?	53	—	—
13. Nasal Br.	24	25	18	20	—	—
14. Orbital Br. Rt.	—	—	—	—	—	—
15. Orbital Br. Lt.	—	—	—	—	—	—
16. Orbital ht. Rt.	—	—	—	34	—	—
17. Orbital ht. Lt.	—	—	—	—	—	—
18. Palatal Leng.	—	—	—	—	—	—
19. Palatal Br.	36?	43?	—	44	38	—
20. Sag. Cr. Arc.	345	354	—	—	—	—
21. Trans. Cr. Arc.	291	—	—	—	331	—
22. Hor. Cir. Head	481	528	466	514	523?	—
23. Biauricular Br.	108	—	—	—	121	105
24. Cr. Occip. Br.	108	—	—	—	113	108?
25. Frontal arc	113	130	—	124	132	—
26. Parietal arc	131	126	—	—	—	110
27. Occipital arc	109	102	—	—	—	—
28. Frontal chord	100	114	—	119	112	—
29. Parietal chord	113	114	—	—	—	103
30. Occipital chord	93	86	—	—	—	—
31. Cr. capacity (c.c.)	1289·5	1326·1				
Mandibular Measurements:						
32. Bigonial Br.	90	—	—	97	92	—
33. Ht. of Ramus	—	—	—	60	59	60
34. Br. of Ramus (min.)	26	—	—	27	31	33
35. Br. of Ramus (max.)	35	—	—	39	—	39
36. Symphyseal ht.	23	—	—	—	30	—

TABLE 5 (*contd.*)

	Urn	*One cist*			*Joint burial*	
Sr.	1/61	2/61	3/61	4/61	1/62	2/62
No.	*F?*	*M*	*Ch.*	*F*	*M*	*F*
Tooth Measurements						
37. 1st Pm–III m. Leng.	—	—	—	—	49	—
I molar. Leng :						
38. Rt–Ant–post.	—	8	—	—	10	—
39. Rt. Transverse	8	10	—	—	10	—
40. Lt. Ant–post	—	—	—	—	10	—
41. Lt. Transverse	—	—	—	—	10	—
II molar Leng.						
42. Rt. Ant–post	—	8	—	—	9	—
43. Rt. Transverse	—	12	—	—	9	—
44. Lt. Ant–post	—	9	—	—	9	—
45. Lt. Transverse	—	8	—	—	9	—
Indices						
1. Leng. Br. index	79·17	72·58?	81·76	82·08	72·73?	76·16
2. Leng. Ht. index	81·55	64·52	—	—	—	—
3. Br. Ht. index	103·01	88·89	—	—	—	—
4. Superior Fac. index	—	—	—	—	—	—
5. Nasal index	57·14	48·08?	62·07?	37·74	—	—
6. Palatal index	—	—	—	—	—	—
7. Orbital index						
Right	—	—	—	—	—	—
Left	—	—	—	—	—	—
8. Trans. Fr. Par. ind.	66·92	72·59	—	70·42	75·74	—
9. Dental index	45·2	(Megadont) calculated from averages				
10. Platymeric index	—	100·0	—	—	—	80·0
11. Pilastric index	—	110·7	—	—	124·0	100·0
12. Prognathic index	86·32	86·14	—	—	—	—
13. Stature (estimated)	174·6	—	—	175·0	165·5	—

TABLE 5 (*contd.*)

MEASUREMENTS OF CRANIA FROM YELESWARAM

	Historical			*Cist burial with 2 others*	*V.B.K. Meg. I*
Sr. No.	3/62 *M*	4/62 *M*	6/62 *F*	1/63 *M*	*No.* 7 *M*
1. Max. Cr. Leng.	175	187	178?	—	174
2. ,, ,, Br.	132	140	116?	135?	141
3. n–i Leng.	163	179	178?	—	174
4. b–br. ht.	—	—	—	101?	135
5. Least Fr. Br.	92	93	97	102?	92
6. Greatest Fr. Br.	112	—	—	—	117
7. Bimastoid Br.	106	112?	86?	100?	—
8. Bizygo. Br.	132	—	—	—	—
9. n–ba line	—	—	—	91?	103
10. pr–ba line	—	—	—	—	109?
11. n–pr. line	60?	65	—	—	69
12. Nasal ht.	48	—	—	—	—
13. Nasal br.	27	25	—	—	26
14. Orbital Br. Rt.	42	40	—	—	—
15. Orbital Br. Lt.	42	40	42	—	—
16. Orbital ht. Rt.	33	36?	—	—	32
17. Orbital ht. Lt.	33	34?	33	—	33
18. Palatal Leng.	—	52?	—	—	—
19. Palatal Br.	42	37	—	—	—
20. Sag. Cr. Arc.	364	—	—	318?	355
21. Trans. Cr. Arc.	295	—	283?	276?	325
22. Hor. Cir. Head	498	522	488	482?	507
23. Biauricular Br.	121	—	98?	—	122
24. Cr. Occip. Br.	103	107	—	—	108
25. Frontal arc	132	139	—	108	125
26. Parietal arc	125	121	—	—	125
27. Occipital arc	107?	—	—	—	104
28. Frontal chord	111	106	—	89	117
29. Parietal chord	111	112	—	—	109
30. Occipital chord	92?	—	—	—	88
31. Cr. capacity (c.c.)					1405·6
Mandibular Measurements :					
32. Bigonial Br.	90	109	80	89	
33. Ht. of Ramus	64	66	51	58	
34. Br. of Ramus (min.)	35	31	31	32	
35. Br. of Ramus (max.)	47	44	42	39	

TABLE 5 (*contd.*)

	Historical			*Cist burial with 2 others*	*V.B.K. Meg. I*
Sr. No.	3/62 *M*	4/62 *M*	6/62 *F*	1/63 *M*	*No.* 7 *M*
36. Symphyseal ht.	26	30	—	—	
Tooth Measurements					
37. 1st Pm–III m. Leng.	42	39	—	—	
I molar Leng:					
38. Rt–Ant–post.	9	10	9	—	
39. Rt. Transverse	9	10	9	—	
40. Lt. Ant–post	10	9	9	—	
41. Lt. Transverse	10	10	9	—	
II molar Leng.					
42. Rt. Ant–post	9	9	8	—	
43. Rt. Transverse	9	9	8	—	
44. Lt. Ant–post	9	9	8	—	
45. Lt. Transverse	9	10	7	—	
Indices					
1. Leng. Br. index	75·43	74·87	65·17?	—	81·03
2. Leng Ht. index	—	—	—	—	77·59
3. Br. Ht. index	—	—	—	74.81	95·74
4. Superior Fac. index	45·45	—	—	—	—
5. Nasal index	56·25	—	—	—	—
6. Palatal index	—	71·15	—	—	—
7. Orbital index					
Right	78·57	90·00	—	—	—
Left	78·57	85·00	78·57	—	—
8. Trans. Fr. Par. ind.	69·70	66·43	83·62	—	65·25
9. Dental index					
10. Platymeric index	—	—	—	—	—
11. Pilastric index	—	—	—	—	—
12. Prognathic index	—	—	—	—	105·83
13. Stature (estimated)	—	—	—	—	—

D. ANALYSIS OF METRIC DATA

Table 5 shows the various measurements of the Yeleswaram crania. An idea of the head form of the Yeleswaram population will be apparent from Tables 6 and 7 extracted out of Table 5.

TABLE 6

HEAD FORM (1960–63 EXCAVATIONS)

Male				*Female*			
Sk. No.	Cr. Leng.	Cr. Br.	Cr. Ind.	Sk. No.	Cr. Leng.	Cr. Br.	Cr. Ind.
			MEGALITHIC				
2/61	186	135	72·58	1/61	168	133	79·17
1/62	187	136	72·73	4/61	173	142	82·08
1/63	—	135	—	2/62	172	131	76·16
Mean	186·5	135·3	72·66	Mean	171	135·3	79·14
			PERIOD VI				
3/62	175	132	75·43	2/62	178	116	65·17
4/62	187	140	74·87				
Mean	181	136	75·15				

Among the megalithic crania the two males (Nos. 2/61 and 1/62) appear to be nearly similar to one another than the three females. The former are dolichocranials. Two of the females are mesocranial while the third (No. 4/61) is brachycranial with an index of 82·08. This brachycranial female was found in the same cist along with a male (No. 2/61) having a cranial index of 72·58 and a child (No.

TABLE 7

HEAD FORM (1955–56 EXCAVATION)

Male				*Female*			
Sk. No.	*Cr. Leng.*	*Cr. Br.*	*Cr. Ind.*	*Sk. No.*	*Cr. Leng.*	*Cr. Br.*	*Cr. Ind.*
	V.B.K.	Meg. 1			V.B.K.	Meg. 1	
No. 3	168	152	90·48	No. 12	170	130	76·47
No. 7	174	141	81·03				
	V.B.K.	Meg. III			V.B.K.	Meg. III	
No. 1	186	152	81·72*	No. 4	173	128	73·99
No. 2	165	147	89·09*				
Mean	173.3	148	85·58	Mean	171·5	129	75·23

*After Gupta and Dutta, 1962.

3/61) having brachycranial index of 81·76 as well. If the child is assumed to be the offspring of the above two adults then the well-known dominant nature of brachycranial skull is supported.

Compared with the above (Table 6) the head form of the skulls from Yeleswaram 1955–56 excavations appears to be somewhat different, as will be apparent from Table 7.

The above table will show that the male population is wholly brachycranial while the two females are dolicho-mesocranial. The position is nearly reverse to that seen in Table 6. But both show the presence of brachycranials in about 66% in the crania from earlier excavations (Table 7) and in 20% in those from the later excavations (Table 6).

The two male skulls from Period VI appear to show nearly the same index although the larger dimensions of No. 4/62 support its dolichocranial nature. The female skull (No. 6/62) on the other hand is hyperdolichocranial (65·17) and the low cranial breadth of 116 mm. is probably indicative of a Veddid element in the population. Osman Hill (1941) has found two crania with the above cranial breadth in his Vedda female series of 18 skulls.

Cranial capacity.—This character could be estimated according to Pearson's formula in the case of the following three crania :

1. 1/61 (F)—1289·5 c.c.
2. 2/61 (M)—1326·1 c.c.
3. V.B.K. Meg. 1,
   No. 7 (M)—1405·6 c.c.

Stature.—Stature could be reconstructed in the case of three skeletons from their femur lengths according to Dupertius and Hadden (1951), and Trotter and Gleser (1952).

TABLE 8

STATURE (IN CM.)

Sk. No.	*Sex*	*Femur length*	*Stature*		
			Dupertius and Haddon	*Trotter and Gleser*	*Mean*
2/61	M	47·8	176·1	176·4	176·3
1/62	M	48·0	176·5	176·9	176·2
2/62	F	45·8	167·5	167·2	167·4

The Yeleswaram population thus falls between above medium and tall groups. Gupta and Datta (1962) also found the same in respect of the materials from the first excavation.

Femur.—Both platymeric and stenomeric femora have been found while all femora show a moderate to high development of the pilaster. The platymeric femur belongs to the female No. 2/62 which shows a pilastric index of 100·0. The male No. 2/61 shows the above values in 100·0 and 110·71 respectively. No. 1/62 shows the highest pilastric index of 124·00.

The medial circumference of the shaft of the femur was found to vary between the minimum of 72 mm. and the maximum of 92 mm. The former was found in a left femur of 1/63–3/63 group of skeletons while the maximum was in the case of left femur of 2/61. Gupta and Datta (1962) found these values ranging between 90–93 mm. for three femora.

Dental index.—A few words might be said regarding this index which is difficult to be found in the case of prehistoric crania due usually to the absence of measurement, length from first premolar to III molar. In the Yeleswaram crania this measurement could be obtained in the case of three crania, of which two are from Period VI. Of the megalithic crania only 1/62 shows this length to be 49 mm. The other constituent measurement of this index is nasion-basion length. This measurement is known for three megalithic crania, 1/61, 2/61, and 1/63 which are 95, 101, and 91 mm. respectively. Thus the mean nasion-basion length is 95·67. If this value is used with 49 mm. for the calculation of the dental index a megadont value of 51·22 is obtained. Megadont value of 53·19 has been reported by Basu (1932-33) in the case of a Munda skull and in 2 out of 36 Burmese crania by the same authority (1931-32). In the latter case however the first premolar to III molar length is much shorter than the 50 mm. in the Munda skull. Compared with the above Yeleswaram index of 51·22, the Piklihal skull from Site VII shows a mesodont index of 42·11. The two crania (Nos. 3/62 and 4/62) from Period VI of Yeleswaram also show much smaller first premolar to III molar length than that found in the case of 1/62, the values being 42 and 39 mm. respectively. Basu found this measurement varying between 40 and 43 mm. in the case of 4 Burmese crania while the two Munda skulls showed the values of 40 and 50 mm.—the latter being megadontic.

Olecranon Fossa Foramen of Humerus.—The presence of the above

foramen was seen in six out of ten complete humerii examined. The frequency of this trait may be high in the Yeleswaram population.

TABLE 9

OLECRANON FOSSA FORAMEN

Sk. No.	*Sex*	*Left*	*Right*
1/61	F	present	present
2/61	M	,,	,,
4/61	F	?	,,
1/62	M	absent	,, (large)
2/62	F	,,	?
3/62	M	,,	absent

It will be apparent from the above table that the olecranon fossa foramen was found four times on the right humerus and twice on that of the left. Three individuals of each sex were examined, of which the right humerus of No. 2/62 and the left of No. 4/61 were not available. Both of them were females. The male No. 1/62 showed a larger foramen than the others on his right humerus but none was present on the left.

E. ETHNIC AFFINITIES

The identification of the ethnic types then living at Yeleswaram is apt to be tentative because of the small size of the skeletal remains. The most interesting point however is the presence of a brachycranial element probably similar to the Scytho-Iranian element already found at Brahmagiri (Sarkar, 1960) and at the earlier excavation at Yeleswaram (Gupta and Datta, 1962). The variable frequencies of the head form have been already discussed. The cranial capacity appears to be higher than the autochthones of India as will be apparent from the female skull (No. 1/1) having a capacity of 1289·5 c.c.

In stature, the two males from Yeleswaram (Table 8) appeared to be taller than the two males from Brahmagiri but the head form of the latter is different from that of Yeleswaram. This will be clear from the following comparative table.

Brahmagiri (Meg. I)		Yeleswaram		
Cr. Ind.	Stature	Sk. No.	Cr. Ind.	Stature
78·21	169·3	2/61	72·58	174·6
83·52	162·9	1/62	72·73	175·0
79·13	—			

Whatever be the ethnic affiliation of the two males (Nos. 2/61 and 1/62) the distinctive nature of their cranial indices among others is clear. The nasal index of 2/61 is mesorrhine (48·08) but the female 4/61, found from the same cist, is brachycranial (82·08) and leptorrhine (37·74). Both were robust individuals as will be obvious from their long bones. The pilastric indices of the femora were 110·7 and 124·0. One is tempted to think of some Indo-Caspian element in the Yeleswaram population.

At the same time a primitive element in the population is evidenced by the high frequency of the perforation of the olecranon fossa of the humerus. The Sarasin brothers found very high frequencies of the above trait among the Vedda of Ceylon—56·3% in males and 62·5% in females. Martin (1928) pointed out long ago that this character is found in high frequencies in the left hand and in the female. Osman Hill however found it in course of his studies among the Vedda in a much lower frequency than the Sarasins. He found it bilaterally present in a female in a total number of 15 humerii. Adding this figure to that found in other collections outside Ceylon, Hill found the frequency to be 27·6%. He also points out that the Sarasins "made much of" this trait. Compared with Tamils, Sinhalese, and Malayalis, he found that this character is not of "any significance for the Veddahs". But he does not doubt its primitiveness and its rarity in higher races of man.

In recent years this character of the humerus has been found in the skeletal remains from Harappa (Sarkar, 1964), in the Chandoli skeleton (Malhotra, 1965), and in the Langhnaj skeleton No. XIV (Ehrhardt and Kennedy, 1965). It is conspicuous however that this primitive trait is obvious in the skeleton Nos. 2/61, 4/61, and 1/62 (Table 9).

Mention has already been made of the possibility of megadontism. The skeleton No. 1/62 shows the first premolar—III molar length to be 49 mm. in comparison to 42 and 39 mm. in the two skeletons, Nos. 3/62 and 4/62 respectively, from Period VI of Yeleswaram. It is difficult to say whether there has been a reduction in the first premolar—III molar length within the span of about these 2000 years but that there has been shortening of the jaws with the consequent loss of the III molar is a phenomenon of civilization.

Thus the skeletal remains from Yeleswaram show a combination of both the advanced and primitive characters. It is possible that the population was subject to changes both by hybridization and

evolution. The former is apparent from the three skeletons from one cist, a tall dolichocephalic, mesorrhine male (2/61); a brachycephalic, leptorrhine female (4/61); and a brachycephalic child. The presence of an urn burial containing a female skeleton has its earliest parallel in the upper stratum of the cemetery H (also R 37) at Harappa. It is no wonder therefore some traits from Harappa have infiltered southwards, of which there are many examples from other protohistoric sites both towards the north and the south of Yeleswaram. The low frequency of the perforation of the olecranon fossa of the humerus, found at Harappa (Sarkar, 1964) may be responsible for the presence of this trait at Yeleswaram. The female from the urn burial shows it in both of her hands.

Evolutionary changes are hard enough to be detected within a short length of time. As stated above some changes in dental length are indicated but more data are required to substantiate it.

F. Summary

1. Thirteen skeletons excavated from Yeleswaram during 1960-63 were studied. One was an urn burial, three were found from Period VI, layer 6. The rest were from megalithic association.
2. For comparative purposes four skeletons excavated during 1955-56 were also examined.
3. Ten skeletons could be subjected to various anthropometric measurements.
4. Brief but salient anatomical descriptions of each skull have been given.
5. The head form of the skeletons from the two excavations show some variation, which is probably local in nature. The 1955-56 excavations yielded about 60% brachycranials while the later one only 20% of the same. They are probably of the Scytho-Iranian element similar to that found at Brahmagiri.
6. The cranial capacity appears to be greater than the autochthones of India, as also the stature, which varied between above medium and tall.
7. The possibility of an Indo-Caspian element is indicated in the presence of tall dolichocephals with meso-leptorrhine nose.
8. A primitive element is apparent in the presence of the perforation of the olecranon fossa of humerus.
9. A Harappan parallel is to be seen in the urn burial. It is not

unlikely that Harappan traits, such as, olecranon fossa foramen, infiltered along with it.

10. Evidences of hybridization and evolutionary changes have been discussed. The Yeleswaram population appears to have been affected by both the above forces.

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CHAPTER THREE

The Central Zone

THERE ARE FIVE sites in this area—Maski, Brahmagiri, Piklihal, Tekkalakota and T. Narsipur—yielding human skeletal remains. In the present chapter, have been included materials from Piklihal, Tekkalakota and T. Narsipur; the report on the last-mentioned site, however, has not yet been published. As the full reports on the human skeletal remains from Maski and Brahmagiri have been prepared by me these are being included separately in the two succeeding chapters.

1. PIKLIHAL

A. GENERAL

Piklihal is located on the Maski nulla, a tributary of the river Tungabhadra, in the Lingsugur taluk of Raichur District, Mysore. The site, discovered by Allchin (1960), is located about 15 miles west of Maski. According to him it is "the most promising Neolithic settlement ... in the district".

Three skeletons were discovered in course of the excavations. The first, identified as an adult female by Ayer (1960) was found from layer 6 of Site VII, while layer 11 of the same site yielded skeleton of a two-year old child. Site VIII (layer 4) produced the third skeleton of an adult male. For the sake of brevity we will call the above skeletons, A, B and C respectively (pls. II-V).

All the three skeletons were extended burials. Allchin described the position of skeleton A as follows : "The body lay upon its back with the head inclined to the right. The head was roughly oriented towards the north. To the left of the head a spouted jar of A_2 grey ware was placed and by the loins there lay a tall vase of similar ware". The latter has been mentioned as "a deep (?) milking bowl by her loins (Pl. 18b)" on page 133 of the report.

None of the above details could however be seen in the photographs provided in his Plates 18(a) and 18(b). Nothing of the lower

part of the skeleton could be seen in them. Then it appears that three large pottery fragments are placed upon the skeleton towards its upper end. The fragment to the right of the skull has covered up a part of the face, while the broken neck of the pot could be seen at the left side. In between the above two fragments there is the third one. They, thus, appear to show that the skull was dislocated from the skeleton and buried by placing it in a jar. It was deliberately broken to accommodate the skull as the mouth of the jar was too narrow for it. The mandible could not be seen in plate 18(a), and that of 18(b) is not probably an *in situ* photograph.

Skeleton A, as revealed from the photographs, does not show any bones of the pelvis and the lower limbs. The only evidence of their presence has been provided by Ayer in his report on the skeletons (Appendix I). Plate 18(a) shows only two humerii, and fragments of radius and ulna of the left side. Compared to the above, skeletons B and C show almost the full compliment of the bones. Skeleton B, belonging to a child "was lying on its right side, with head roughly towards the south-east". The position of skeleton C was also supine, the head being towards the south.

Ayer (1960) in his report on the above skeletal remains has pointed out the resemblance of the Piklihal skeleton with "the modern south Indian skull". He has more than once emphasized similarities with the "dissection-room specimens", though a few differences have also been noted. Comparing the contour of the skull from Site VIII with those of Aditanallur, Tamil, and Australian as provided by Zuckerman (1930), Ayer remarks : "The length of the female skull was nearly equal to that of the Adichanallur skull ...", but there is a difference of 8 mm. between the two, the lengths being 175 mm. and 183 mm. respectively. He further states : "It thus appeared to have a very close resemblance to the Tamil skull. The close resemblance of both the male and female Piklihal skulls to the South Indian Tamil skull is a noteworthy fact".

This is not however borne out from the dioptograph tracings. The Piklihal skull from Site VII appears to be the smallest in length and in height of all the four skulls compared, while it shows the greatest sub-auricular depth of all. Then there are certain irregularities in the drawing. It does not agree with that provided by Zuckerman.

It is on this basis that Allchin has built up his theory of Dravidian origins. This problem will be discussed later. For the present

it will suffice here to quote the following from Allchin : "It would seem to follow that in the absence of any better claimant, this stratum of settlers must have been responsible for the introduction into the Deccan of the Dravidian family of languages ... The skeletal evidence of Piklihal shows that the settlers were closely allied to one of the elements in the modern population ....".

Elsewhere (p. 134) Allchin writes on the skeletal remains as follows : "The skeletal evidence, in so far as we have been able to observe it, suggests that the bone formation was singularly heavy. This may have been partly due to the nutritious diet, rich in meat, millet and milk. The stature was medium to tall, and heads medium long and the jaws slightly prognathus. The skull is strikingly similar to one from Adichanallur, and also appears to resemble closely some of the modern inhabitants of Raichur (Pl. 18a). The main difference of physique we may expect is that many of the modern examples of this type are lean and wiry due no doubt to restricted diet".

It is difficult to say anything on the dietary habits of a people from a mere superficial study of a few bones. At the same time, Ayer from the comparative robusticity of the child skeleton B points out : "It is very probable that it is a genetic character as the child's bones also reveal the same comparative robustness in formation".

The present writer had the opportunity of examining the two Piklihal crania, while studying the Yeleswaram collection at Hyderabad in October, 1966.

Table 10 shows the measurements of the two skulls. The skull from Site VIII was so full of sandy encrustations that many anatomical landmarks could not be accurately located. Only a few measurements were therefore taken.

Both the Piklihal crania appear to the present writer to belong to the male sex. The Site VII skull shows well developed supraorbital ridge, marked slope of the frontal bones, prominent supratemporal lines, strong well developed cheek bones and supra-mastoidal crest (best seen in Photograph 18(b), Allchin, 1960), all of which point in favour of a male. The absence of muscle impressions is no doubt there but this is probably due to the old age of the skull. All sutures are nearly obliterated, specially the whole of the left coronal and the lower half of the sagittal suture are faintly seen.

Further out of 37 comparable measurements provided by Ayer,

TABLE 10

MEASUREMENTS OF PIKLIHAL CRANIA (IN MM.)

Number of the skulls	*Site VII*	*Site VIII*
Sex	*Male*	*Male*
Maximum Cranial length	174	173
Maximum Cranial breadth	131	140
Nasion inion length	160?	165?
Basionbregmatic height	134	—
Least frontal breadth	94	95
Greatest frontal breadth	106	—
Bimastoid breadth	100	95?
Bizygomatic breadth	127	—
Nasion basion line	95	—
Prosthion basion line	98	—
Nasion gnathion line	109	—
Nasion prosthion line	68	—
Nasal length	46	—
Nasal breadth	25	—
Inter orbital breadth	21	—
Orbital breadth Right	40	—
,, Left	40	—
Orbital height Right	32	—
,, Left	31	—
Maxilloalveolar breadth	65	—
Palatal length	54	—
Palatal breadth	42	—
Transverse cranial arc	294	—
Horizontal circumference	480	—
Bicondylar breadth (mandible)	116	—
Bigonial breadth	96	—
Length (height) of ramus	68 (R & L)	—
Breadth :		
(a) Minimum	34/35	—
(b) Maximum	39/40	—
Symphyseal height	28	—
Biauricular breadth	111	—
Outer biorbital breadth	105	—
Inner biorbital breadth	96	—
Greatest occipital breadth	97	—
Frontal arc	127	—
Parietal arc	124	—
Frontal chord	111	—
Parietal chord	115	—
Length of first Premolar to third Molar	40 (R)	—

TABLE 10 (*contd.*)

Number of the skull	*Site VII*	*Site VIII*
Sex	*Male*	*Male*
Length of first Molar (Upper)		
Right Anteroposterior	11	—
Transverse	11	—
Length of second Molar (Upper)		
Right Anteroposterior	9	—
Transverse	9	—
Left Anteroposterior	11	—
Transverse	10	—
Biorbitonasal arc	102	—
Glabella nasion length	10	—
Basion lambda line	169	—
Indices of the Cranium :		
Length breadth index	75·29	80·92
Length-height index	77·01	—
Breadth-height index	102·29	—
Total facial index	85·83	—
Prognathic index	103·16	—
Superior facial index	53·54	—
Orbital index		
Right	80·00	—
Left	77·50	—
Nasal index	54·35	—
Palatal index	77·78	—

Skull A which is a female according to him, shows larger values than the male (Skull C) for 13 measurements.

The following five characters show values above 2 mm. :

1. Cranial length 3 mm.
2. Palatal length 5 mm.
3. Occipital arc 7 mm.
4. Horizontal circumference 5 mm.
5. Bigonial breadth 9 mm.

We may note here as well that according to the above authority the male (Skull C) individual was 176·3 cm. in stature compared to 164·5 cm. for the individual (Skull A) from Site VII. The estimated cranial capacity was 1441 c.c. for the former, and 1299 c.c. for the latter. The cranial capacity of the Skull A has been found by direct measurement to be 1252 c.c. which is outside the range for females

of the following groups (Table 11) (Sarasins, 1892–93) excepting the Vedda series of Osman Hill (1941).

TABLE 11

COMPARATIVE CRANIAL CAPACITY (IN C.C.)

	Male		*Female*	
	Mean	*Range*	*Mean*	*Range*
Vedda (Sarasins)	1250	1012—1408	1139	1037—1217
Vedda (Osman Hill)	1275	1070—1611	1167	960—1390
Tamil (Sarasins)	1336	1236—1498	1171	1058—1240
Sinhalese (Sarasins)	1345	1276—1417	1098	1053—1175

The south Indian male average[1] has been found to be 1208 c.c. (Rao and Ayer, 1942). It is thus lower than that of 1252 c.c. found for Skull A. Taking in view all the above facts it appears to the present writer that Skull A belongs to a male. The mandible also shows male characters in respect of the well developed squarish chin, larger mandibular angle, etc.

B. ETHNIC AFFINITIES

It will be apparent from the above discussion that the two individuals belong to medium to tall stature and meso-brachycranial head form. Skull A is hypsicranial (77·01), acrocranial (102·29), with a flat nose (54·35), medium high upper face (53·54) and medium total facial index (85·83). The palatal index is 77·78 indicating a narrow palate. The prognathic index is 103·16, which is the upper limit of prognathism. The most noteworthy point is the robusticity of the three skeletons, as already mentioned. The pilastric index, calculated from Ayer's measurements, for the femur of skeleton C is 111·53. This robusticity of the skeleton associated with a tall stature and meso-brachycranial head form point to the megalithic stock found at Brahmagiri (Sarkar, 1960). Though the skeletons have not been found from any megalithic association the dominant influence of the above ethnic strain must have been in India before they could establish their cultural distinctiveness. At Piklihal too, megaliths in the form of "cairn circles of 20 to 25 feet in diameter" (Allchin, pls. 8 and 9) are present. Their excavations would throw

[1]Range

more light on the racial identity of the Piklihal skeletons and on the neolithic chronology as well. Many of the cultural objects, specially the metallic ones and the semi-precious stone beads might have drifted from there.

2. TEKKALAKOTA

The neolithic site of Tekkalakota was discovered by Rao (1965) in 1963. It is located on the river Tungabhadra in the District of Bellary in Mysore. Two cultural phases have been identified as a result of the excavations. Phase I has exposed six burials—3 adults and 3 children, while Phase II that of only one adult. The adult burials were discovered from trenches. The child burials were found from a circular house. These circular house types are still met with among the local Boyas or Bedars or Byadas (Rao, 1965). Of the three child burials one was an urn burial (no. 4), one was found under the floor of the house while, the third was found "in the debris just outside the house".

Phase I has yielded both fractional (nos. 1, 7) and extended (no. 5) burials while the single skeleton (no. 2) from Phase II was an extended one. Fractional burials as seen at Tekkalakota thus appear to be preceded by the process of exposure and desiccation. Rao states : "usually the long bones and the skull were collected after the process of desiccation and ceremonially interred". Of the six burials from Phase I, bones of three individuals were found in one pit (no. 1). The skeleton from Phase II was an adult female between 40–45 years of age with elaborate funerary pottery. Rao also notes "that adults were buried in multiple pots after desiccation" and a "four pot burial" was found.

Two male (nos. 5 and 7) and one female skulls (no. 2) were found good enough for detailed study by Malhotra (1965) who has studied the human remains from Tekkalakota. The rest of the crania was fragmentary and could be utilized for a few measurements only. Some of the important measurements (in mm.) given by Malhotra are as follows in Table 12.

According to Malhotra the skulls from the Tekkalakota excavations reveal a "mediterranean-proto-australoid complex".

Carbon-14 tests of three charcoal samples from neolithic Tekkalakota according to Tata Institute of Fundamental Research have

TABLE 12

MEASUREMENTS OF CRANIA

Skull No.	2	5	7	*Mean*
Sex	*F*	*M*	*M*	
1. Max. cranial leng.	181	185	178	181·3
2. „ „ br.	122	134	132	129·3
3. Cranial index	67·4	72·4	74·2	71·3
4. Aur. breg. ht.	114	120	117	117
5. Length ht. index	63·0	64·9	65·7	64·5
6. Least frontal br.	84	91	94	89·7
7. Nasion-prosthion line	72	63	—	67·5
8. Nasal ht.	52	50	—	51
9. Nasal br.	24	28	—	26
10. Nasal index	46·2	56·0	—	51·1
11. Hor. circumference	490	491	507	496
12. Cranial capacity (c.c.)	1037	1450	1263	1250

been found to vary between 3395 and 3625 years with a ±of 105 years, thus giving an average of 3495±105 years. The culture thereby can be assigned a date of 1545 B.C.

3. T. NARASIPUR

T. Narasipur is in the Taluk of the same name in the Mysore District. The excavated site is located on the left bank of the river Kaveri.

In 1961–62 Seshadri[1] discovered from the above site a human skeleton from a neolithic level (layer 6). The skeleton was buried in a pit. It "lay in an east-west direction with its hands placed over each other on the abdomen part. Beside the heads were found two pots of the handmade cream-coloured ware together with a shallow bowl with channel spout". "A pottery stand with a concave top", said to be a neck-rest, and found in large quantities in other parts of the excavations was also found "by the right side of the head".

The skeleton is being studied at the Deccan College Post-Graduate and Research Institute, Poona.

[1] *Indian Archaeology, 1961–62—A Review*

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CHAPTER FOUR

Maski

1. THE BURIALS

MASKI IS LOCATED in Linsugur Taluk of District Raichur, Mysore. The ancient site stands to the west of the present village of Maski to the north of which flows the Maski nullah, a tributary of the river Tungabhadra.

Thapar (1957) has published a detailed report of the Maski excavations. He has noted five classes of burials all of which belong to the megalithic complex of the Deccan. Two menhirs were also excavated but they did not yield any sepulchral association. The five classes of burials are as follows :

Class B(i)—Four burials of this class were exposed from habitation area. They have been equated with the first occupation of the megalithic people. An elliptical pit varying between $3\frac{1}{2}$ and 6 feet was first of all dug. Its floor was then spread with ash up to a thickness of 4–5 inches. The skeleton was then laid extended upon it and again covered with ash. Sometimes the skeleton was covered with stone slabs. Grave furniture was then placed upon it. There was no lithic demarcation on the surface.

Class B (ii)—Only one out of six such burials was fully excavated. The pit of this grave measured 8 ft. 2 in. by 4 ft. and was dug to a depth of 7 ft. 9 in. up to the natural soil. Fifty-five pots were found in the grave. "Overlying the pottery in the central area were found the skeletal remains in a lump, including two skulls and a number of long bones in fragmentary condition" (Thapar, 1957). Ash was found both above and below the skeletal remains.

Class B (iii)—This was the simple urn burial. In one such burial excavated eleven pots were found surrounding the urn and some fragmentary bones were found "amidst this deposit". Thapar points out its analogy with Amirthamangalam and Adittanalur. Probably the bones were not burnt ones.

Class B (iv)—In the central area of an oblong pit "the skeleton was placed in an extended position and was covered over with stone slabs, above the level of which were deposited the funerary pots" (Thapar,

1957). A circle of unhewn boulders on the surface was the demarcation of the grave. Without this lithic appendage this class of burial is nearly similar to that of B (i).

Class B (v)—Thapar describes it as follows : "A circle was formed by untrimmed boulders. In the centre a rectangular pit was dug out with a shallow ramp on the eastern side. Three to seven inches above the floor of the pit were placed the skeletal remains along with iron objects and pottery. The pit was filled up to the rim with loose earth mixed with ash and sand followed by a packing of rubble rising as a cairn".

One burial of this type was excavated. The fragmentary skeletal remains were placed in a lump at one end of the ashy floor, while a large number of pots "lay above the level of the skeletal remains". From the point of view of fractional burial this class of burial appears to be similar to B (ii).

The five classes of burials described above are really three, viz.,

(a) extended burial, which was not probably preceded by any primary process as is obvious in (b);
(b) fractional burial, obviously preceded by the primary process of exposure; and
(c) Urn burial.

The megalithic people of Maski thus appears to have followed some of the methods of disposal of the dead practised at Harappa, where all the above three types of burial are known.

2. THE HUMAN SKELETAL REMAINS FROM EXCAVATION

The human skeletal remains from the archaeological excavations at Maski (Thapar, 1957) were received from the Director, Anthropological Survey of India, Indian Museum, Calcutta, on 19th June, 1962. The entire material was sent in a steel trunk (68 cm. x 43 cm. 33 cm.) containing one large cubical cardboard box with a skull within, not belonging to the present series, 10 small boxes, and 41 packets—the bones being wrapped up in cotton wool and packing paper. The brown wrapping paper was very much worm eaten.

The bones did not appear to have been opened since their removal from the site. In many cases the old plasticine still adhering to the bones had been hardened and its removal was difficult without injuring the fragile bones. The bones were not numbered individually

but the wrapper containing them bore a number upon it in ordinary pencil which had faded through time.

3. THE SKELETONS

The paucity of the skeletal materials when compared with the details and photographs published in the report by Thapar (1957) is rather surprising. The report shows five photographs of full length skeletons from five pits (nos. 15, 16, 28, 28A & 30) and two from fractional burials (MSK. 9, pit 1 and MSK. Meg. 2). The pit numbers were not mentioned in all cases.

The skeletons were dug from two cuttings numbered MSK. 9 and 10. Six to eight burials were located in the first cutting and it has been mentioned in the report that only one was fully excavated from pit 2. It appeared to be a fractional burial. As will be apparent from the identification list given below the fractional nature of the burial is also borne out from the skeletal remains.

There is no mention of pit 3 from cutting MSK. 9 in the report though we have remains of at least 5 individuals, 2 adults and 3 children, from this pit.

Cutting MSK. 10 yielded 5 skeletons, one each from each of the pit nos. 15, 16, 28, 28A and 30. The skeletal materials, received by us were under three heads, pit no. 16, pit no. 28, and no. MSK. 10. The last number contains remains of at least 3 skeletons, 2 adults and one child, the latter being probably from pit no. 30. The 2 adults then possibly belong to the pits 15 and 28A. It appears from the description of the last skeleton given by Thapar that "the maxilla was lying dislodged below the mandible"—a description which fits in well with serial no. 3 of MSK. 10 in our identification list. The adult male calvarium (no. 1 of our list) then in all probability appears to be from pit 15 and the complete teeth on both the jaws, both in the description given in the report and in the specimens with us, also support it. The skeleton has, however, been mentioned as a female in the report but to us it appears to be a male.

The paucity of bones appears to be very much marked in the case of cutting MSK. 10. It will be apparent from the identification list of the bones.

A. Cutting MSK. 9

Pit 2 (adult)

1. Skull-fragments—1 lot and a maxilla.
2. Mandible-fragments—3 (teeth with medium wear).
3. Loose tooth—1.
4. Long Bones — fragments — 1 lot.

Pit 3

1. Skull-fragments of an adult numbered (a).
   Skull-fragments, along with fragments of maxilla numbered (b) (adult).
   Skull-fragments of a child numbered (c).
   Skull-fragments of another child numbered (d), along with 2 animal bones.
   Skull-fragments of an infant numbered (e), new born (?).
2. Mandible-fragments—12 (belong to 3 individuals, adult).
3. Teeth—18 (adult).
4. Clavicle-fragments—3 (2 belong to a very robust individual).
5. Scapula-fragments—6, (adult) (1 belongs to a very robust individual).
6. Rib-fragments—1 lot (adult).
7. Vertebrae—9 (adult).
8. Humerus-fragments—18 (adult) (appear to belong to 3 persons, one very robust).
9. Ulna-fragments—3 (adult) (appear to belong to 2 individuals).
10. Radius-fragments—10 (adult).
11. Carpals—12 (adult).
12. Metacarpals—15 (adult).
13. Pelvis-fragments—9 (adult).
14. Femur-fragments—6 (adult).
15. Patella—4 (adult).
16. Tibia-fragments—15 (adult).
17. Fibula-fragments—5 (adult).
18. Tarsals—9 (adult).
19. Phalanges—18 (adult).
20. Fragments of long bones—1 lot (adult).

Description of Skulls—Skull (a): Adult male, fragmentary, but the frontal bone could be fairly reconstructed. Bones are very light

in nature and similar in thickness to that of Skull (b) described below. The fragment of frontal bone shows well developed supraorbital ridges and low retreating forehead.

The following measurement was only possible.

Least frontal breadth—84 mm.

Skull (b): Adult male (?), fragmentary, but the bones appear to be very light and spongy in nature; cranial bones thick probably belongs to a male as judged from the two mastoid bones. Judging from the spongy and the light nature of the bones, two fragments of a maxilla may be associated with it. It shows 4 teeth, I and II molars on each side, all of which are very much worn out.

The adult mandible is broken into two fragments with the II and III molars *in situ,* all of which are highly worn out. It could not be associated with any crania. The following measurements were possible.

Maximum breadth of ramus	— 41 mm.
Minimum breadth of ramus	— 31 mm.
Mandibular height	— 58 mm.

The gonial angle of the mandible is bent outwards and muscular impressions are very well marked.

None of the long bones was suitable for any measurements but there was probably one individual who was very robust of all. A fragment of right femur showed a peculiar bony mass (1·1 cm. x 1·9 cm.) about ½ cm. anterior to the lesser trochantor in the position of attachment of pubo-capsular ligament and posterior to distal attachment of the vertical band of ilio-temporal ligament. The hypo-trochantoric fossa was marked in the form of a deep groove while the linea aspera was well developed in the form of a pilaster. The following measurements of the shaft were possible.

Proximal medio-lateral diameter	— 29 mm.
Proximal dorso-ventral diameter	— 27 mm.
Medial medio-lateral diameter	— 27 mm.
Medial dorso-ventral diameter	— 33 mm.
Platymeric index	— 93·10
Pilastric index	— 122·22

B. Cutting MSK. 10

Pit 16 (Adult, male ?)

Skull fragments of left lateral side.

Fragments of scapula and vertebrae.

Description of the Skull—Male (?); damaged; many parts missing; cranial bones of medium thickness; mastoid, supramastoidal crest and temporal line medium in development. The following measurement was only possible.

Least frontal breadth — 87 mm. (?)

The forehead is slightly distorted but appears to be similar in form to that of 10 (a).

Pit 28 (Adult)

Skull fragments of the occipital bone. Bones thick; muscle impressions well developed.

MSK. 10

1. One adult male calvarium (partly restored) marked (a), along with a damaged maxilla and mandible (possibly from Pit 15).
2. Fragments of a child (about 7 years) skull associated with a mandible with a milk tooth *in situ* (Skl. no. 1 A) (possibly from Pit 30).
3. Fragment of an adult, isolated maxilla could be articulated with mandible marked (b) (possibly from Pit 28 A).
4. Mandible-fragment—1 (adult).
5. Teeth—6 (adult—3; milk—3).
6. Clavicle-fragment—1 (adult).
7. Vertebrae—1 lot (adult).
8. Ribs—1 lot (adult).
9. Femur-fragments—8 (adults).
10. Phalanges—5 (adult).
11. Unidentified bones—1 lot (adult).

The following measurements of a nearly complete femur were possible.

Proximal medio-lateral diameter	—28 mm.
Proximal dorso-ventral diameter	—27 mm.
Medial medio-lateral diameter	—27 mm.
Medial dorso-ventral diameter	—29 mm.
Platymeric index	—96·43
Pilastric index	—107·41

Description of the Skulls—MSK. 10(a) (Adult, male); Calvarium

with a partially damaged maxilla but could be jointed to the skull and fitted to a mandible as well; temporal and occipital bones missing; cranial bone thick; two mastoids present but could not be joined.

Long oval in shape; sagittal suture present; fusion on coronal suture begun; postorbital constrictions not marked; forehead vertical, narrow in breadth and medium in height; supraorbital ridges weakly developed; glabella medium; left orbit quadrilateral; orbital margins rounded; left malar prominent; inter-orbital breadth broad; nasal root medium in depth; nasal aperture amblycraspedote; mastoids and supramastoidal crest well developed; palate deep, parabolic in outline; incisors, canines and the III molars missing; teeth highly worn out; face appears to be broad; subnasal prognathism marked.

Mandible heavy, all teeth present excepting 3 incisors; prominent chin; gonial angle turned outwards; muscle impressions well developed; dental arch parabolic in outline; one incisor peg-shaped; wear of teeth marked.

The following measurements (in mm.) of the above skull were possible.

Least frontal breadth	—	93
Greatest frontal breadth	—	114
Nasion prosthion line	—	65 (?)
Nasal height	—	47
Nasal breadth	—	26
Orbital breadth (left)	—	42
Orbital height (left)	—	35
Interorbital breadth	—	28
Maxillo-alveolar breadth	—	61
Palatal breadth	—	36
Bicondylar breadth	—	123
Bigonial breadth	—	97
Height of ramus	—	57
Minimum breadth of ramus	—	34
Maximum breadth of ramus	—	41
Symphyseal height	—	31 (?)
Mandibular length	—	62
Mandibular angle	—	120°
Frontal arc	—	121
Frontal chord	—	106

Nasal index	—	55·32
Frontal curvature index	—	87·60
Frontal curvature angle	—	125·5

MSK. 10 (b) (Adult, male ?)

MAXILLA AND MANDIBLE

Maxilla—Canine fossa medium; palate very deep and broad, parabolic in outline; all teeth present excepting 3 molars and II premolar on the right, and the I and II molars on the left; right II premolar abnormal in having a narrow constricted root—the same is seen along with a pathological lesion on the left premolar region.

Mandible—Prominent chin, gonial angle turned outwards; muscle impressions highly developed; dental arch parabolic in outline; all teeth missing except right, I and II molars and II premolars and all left molars; pathological lesion present at left premolar region.

The following measurements were possible.

Maxillo-alveolar breadth	—	64 mm.
Palatal breadth	—	42 mm.
Bigonial breadth	—	98 mm.
Height of ramus	—	69 mm.
Minimum breadth of ramus	—	34 mm.
Maximum breadth of ramus	—	44 mm.
Mandibular angle	—	123°

MSK. Meg. 2 (Adult)

1. Skull-fragments—1 lot
2. Mandible-fragments—2
3. Scapula-fragment—1
4. Humerus-fragments—2
5. Ulna-fragments—2
6. Carpals—4
7. Metacarpals—2
8. Phalange—1
9. Fragments of long bones—1 lot
10. Tooth fragment—1

MSK.

Skull fragments of a child.

4. ETHNIC AFFINITIES

It will be apparent from the description already given that there is not a single complete skull in the collection from which the basic data regarding the cranial indices could be obtained. Only skull MSK. 10(a) which may be from Pit 15 could be utilised for a few measurements. Morphologically this skull appears to be long-headed, broad-nosed and with a broad to medium-broad prognathous face. As such the few remarks regarding the ethnic affinities of the Maski skeletal remains are based on very slender evidences and therefore very tentative in nature.

The least frontal breadth was known for three crania, of which the one from Pit 16 appears to be slightly distorted. It shows a value of 87 (?) mm. compared with 93 mm. and 84 mm. for MSK. 10(a) and MSK. 9 (a) respectively. All the three belong to the male sex and their mean comes to 88 mm. This mean together with the morphological nature of the frontal bone, as a whole, appears to show a narrow forehead with a short to medium height. It is much smaller in comparison to the Brahmagiri crania as will be evident from the following (Table 13).

TABLE 13

LEAST FRONTAL BREADTH COMPARED (MM)

Maski		Brahmagiri	
10 (a)	93	No. 1A	100
Pit16	87 ?	,, 1B	101·5
9 (a)	84	,, 1C	100
Mean	88	Mean	100·5
		No. IE	75 ?

The two means of the above table appear to differ from one another. The contour of the frontal bones of the two groups is also different, which is probably ethnic in nature. Skull no. 1E from Brahmagiri has been shown (Sarkar, 1960) to belong to an ethnic strain different from those of nos. IA–1C taken together and the former appears to be similar to the Maski crania in the shape of the frontal bone. In spite of the deformity evident in the Brahmagiri Skull no. 1E, it appears to be closer to the Maski mean than the Brahmagiri

one shown in the above table. It may also be pointed here that the Brahmagiri Skull no. 1D, belonging to a child of 12 (?) years age, shows the least frontal breadth of 88·5 mm.

The greatest frontal breadth of the Maski skull is 114 mm. compared with 118 mm. and 120 mm. of Brahmagiri 1A and 1B respectively.

The length of the upper face is within the range of variation of the three Brahmagiri crania (nos. 1A–1C). In the dimensions of the nose the Maski individual appears to possess a smaller nose than the Brahmagiri ones mentioned above.The nasal index is platyrrhine with an index of 55·32.

The two Maski crania nos. 10 (a) and 10 (b) show the following common measurements (Table 14).

TABLE 14

MEASUREMENTS OF MASKI CRANIA (MM)

	Msk. 10 *(a)*	*Msk.* 10 *(b)*
1. Maxillo-alveolar breadth	61	64
2. Palatal breadth	36 ?	43
3. Bigonial breadth	97	98
4. Height of ramus	61	69
5. Minimum breadth of ramus	34	34
6. Maximum breadth of ramus	41	46

The close correspondence between the two sets of measurements will be apparent from the above table. Some of the greater measurements of 10 (b) are possibly due to the age of the latter as is evident from the dentition. The above characters relate to the oral cavity and the mandible, and this combined with our observations on the frontal bones of the three crania (Table 13) mentioned above appears to show that all probably belong to the same ethnic stock.Their difference from the ethnic strain represented by the Brahmagiri skeletons (1A–1C) has also been already pointed out. This will also be to some extent evident from the few measurements of the femora from Maski. The two indices of the femora are shown below in Table 15.

The two Maski femora appear to be very much near to the stenomeric type, while three out of four Brahmagiri femora are very much platymeric in having an index below 85. The robusticity of the two groups of femora, as seen in the pilastric index, appears to be similar

TABLE 15

FEMORAL INDICES FROM MASKI AND BRAHMAGIRI COMPARED

Platymeric Index				*Pilastric Index*			
Maski		*Brahmagiri*		*Maski*		*Brahmagiri*	
No.		*No.*		*No.*		*No.*	
MSK. 9	93·10	(a)	79·71	MSK. 9	122·22	(a)	100·00
MSK. 10	96·43	(b)	66·67	MSK. 10	107·41	(b)	103·45
		(c)	104·84			(c)	142·31
		(e)	76·67			(e)	112·00
Mean	94·77		81·97		114·82		114·44

in the mean values fortuitously though the maximum range (142·31) is much higher in the Brahmagiri femora than the Maski ones.

It is therefore probable that the Australoid ethnic strain represented by the Brahmagiri crania 1D and 1E from the megaliths and by the child skeleton from the Stone Axe Culture layer of the same locality appears to be also present among the Maski human remains. There is no evidence among the latter of the ethnic strain represented by the Brahmagiri megalithic crania 1A–C.

5. A CRANIAL COLLECTION FROM MASKI MUSEUM

A. INTRODUCTION

The cranial collection described below was received from the Director, Anthropological Survey of India, Indian Museum, Calcutta on 19 May 1962, contained in four crate boxes (40″ × 24″ × 24″). It was previously sent to Dr. B.S. Guha, who could not complete the study owing to his sudden death. It was till then presumed that the crania were excavated by the Archaeological Survey of India in course of their Maski excavations (Thapar, 1957), but when some of the crania were unpacked discrepancies in their numbers and other details were noted. As no field notes were available at the office of the Anthropological Survey the matter was referred to Mr. Thapar and the relevant extract from his reply is quoted below :

"Crania marked numerically in roman and arabic are from the previous excavations conducted by the former Hyderabad

Archaeological Department. I have no knowledge about their stratigraphical position and exact provenance. Mr. .... had taken them from the old excavated material lying at Maski with a view to studying them for comparative purposes".

B. The Collection

The collection comprised only the crania, majority of which was in small unrestorable fragments. Mandibles were also present in some cases. The details are given in the identification list.

The collection bore the following four series of numbers :

1. Roman numbers M I—M XLIV, comprising 39 samples (6 numbers missing);
2. Arabic numbers M 1—M 178 comprising 118 samples (60 numbers missing);
3. One maxilla and mandible numbered M. D.
4. One skull with the word *Maski* upon it.

A total number of 329 individuals is represented in the above collection. They are distributed as follows :

	Adult	Child	Total
1. Roman Nos.	43	30	73
2. Arbic Nos.	157	97	254
3. M. D.	1	—	1
4. Maski	1	—	1
	202	127	329

Of the 43 and 157 adults under Roman and Arabic numbers respectively, 4 males and 2 females, and 33 males and 4 females, respectively, could be sexed. The 'Maski' skull was also a male.

Majority of the crania appeared to be of recent origin as judged from the texture of the above.

A complete identification list of the various skeletal remains along with measurements where possible is given below.

(i) Roman Numeral Series

M. I

Skull — fragments (child)—1 lot.
Skull — fragments of another adult marked (a) including two maxillary fragments.

Skull — fragments (adult) marked (c).
Maxilla — 1, complete of another adult marked (b).
Mandible — 1, left ascending ramus missing, could be articulated with maxilla marked (a).
Mandible — 1, complete with 14 teeth *in situ*, could be articulated with maxilla marked (b).
Loose teeth — 5 (milk).

Total—4 individuals: adult—3, child—1)

Description of Skull—(**M. Ia**) Only the frontal bone could fairly be restored; forehead retreating, medium in height and breadth; supraorbital ridge medium; temporal line well developed; cranial bone thick; palate deep; right upper I molar shows evidence of caries.

Mandible — 1, left ascending ramus missing; chin prominent; muscle impressions well developed; teeth highly worn out.

The following measurements were possible,

Least frontal breadth — 85 mm.
Min. breadth of ramus — 30 mm.
Height of ramus — 62 (?) mm.

M. I (b) (adult)

Maxilla and mandible-palate shallow; parabolic in outline; prominent chin, muscle impressions more developed than M. I (a), teeth with medium wear.

The following measurements were possible,

Maxillo-alveolar breadth — 61 mm.
Symphyseal height — 38 mm.

M. II (adult)

Skull — fragments—1 lot.
Maxilla — fragments—3 with 8 teeth *in situ*.
Mandible — fragments—4 with 6 teeth *in situ*.
Loose teeth — 24.
Two III upper molars (left *in situ* and below the alveolar margin) of abnormal size. (Adults—2)

M. III

Skull — fragments—5 (adult) appear to belong to two individuals as seen from 3 temporal fragments.
Skull — fragments—1 lot (child).

Maxilla — fragments—2 with 7 milk teeth *in situ.*
Mandible — fragments—2 (child) appears to be below 2 years of age.

(Total—3 individuals: adult—2, child—1)

M. IV (Child about 7 years ?)

Skull — small fragments—1 lot.
Mandible — 1 with 8 milk teeth *in situ.*
Loose teeth — 2 (milk molar).

(Child—1)

M. V

Skull — fragments—1 lot (adult).
Mandible — fragments—2 (adult).
Loose teeth — 24 (adult–21, milk–3)—adult teeth shows signs of deep wear, one III molar shows an accessory cusp.

(Total–2 individuals: adult–1, child–1)

M. VI (adult)

Skull — fragment—1.
Maxilla — fragments—3 with 9 teeth *in situ.*
Mandible — fragments—2 with 13 teeth *in situ,* teeth with medium wear. The following measurement of the mandible was possible,

Symphyseal height —30 mm.

(Adult—1)

M. VII

Skull — fragments—1 lot (child) and a fragment of right temporal of an adult.
Mandible — fragment—1 with 3 teeth *in situ* (child).
Loose teeth — 2 (milk).

(Total—2 individuals: adult–1, child–1)

M. VIII (adult, male)

Skull — posterior fragment of a calvarium, bones thick.
Skull — fragments—1 lot.
Mandible — 1 complete with 9 teeth *in situ.*
Tooth — 1 molar.

Mandible shows chin prominent, muscle impression medium; wear of teeth marked.

The following measurements were possible :

Min. breadth of ramus — 34 mm.
Mandibular length — 67 mm.
(Adult—1)

M. IX (adult)
Skull — fragment of temporal—1.
Mandible — 1 right ascending ramus.
Loose teeth — 3.

The following measurements of the right half of the mandible were possible:
Min. breadth of ramus —30 mm.
Max. breadth of ramus —45 (?) mm.
(Adult—1)

M. X (child, below 2 years)
Skull — one calvarium.
Skull — fragments—1 lot.
Mandible — 1 left half with I milk molar *in situ*.
Loose teeth — 2 (milk).
(Child—1)

Description of skull (M. X).—Calvarium with many parts missing; bones very thin and light; anterior fontanelle open; metopic suture fused only about 3/4th of the length, occiput nearly vertical with a slight bulge at the lower region.

The following measurements were possible:
Max. cranial length — 141 mm.
Max. cranial breadth — 117 mm.
Length-breadth index — 82·98

M. XI
Skull — fragments—1 lot (appear to belong to two adults) cranial bones very thick.
Skull — fragments—1 lot (child).
Maxilla — 1 complete with 10 teeth *in situ* (adult)—wear of teeth medium; right lateral incisor shovel-shaped.
Mandible — fragment—1 (adult).
Mandible — fragments—2 (child) aged below 1½ years.
Loose teeth — 7 (adult).
(Total—3 individuals: adult–2, child–1)

M. XII (adult)
Skull — burnt fragments.

Maxilla — fragments—2.
Mandible — fragments—2.

Description of skull (M. XII).—Fragments could be joined to form a part of right parieto-occipital region; sagittal and lambdoidal suture present; bones thick; all fragments show presence of various shades of burning from deep black to brownish black.

(Adult—1)

M. XIII (adult)

Skull — fragments—7 including one of maxilla with 3 molars; cranial bones very thick.
Mandible — fragments—2, teeth *in situ* showing medium wear.

The following measurements of the left arm of the mandible were possible:

Max. breadth of ramus — 43 mm.
Min. breadth of ramus — 36 mm.
Height of ramus — 68 mm.

(Adult—1)

M. XIV & M. XIV A

Skull — fragments, very thick (adult).
Skull — fragments (child).
Calvarium with 4 fragments of an adult mandible (marked M. XIVA).

(Total—3 individuals: adult–2, child–1)

Description of Calvarium (M. XIVA).—Damaged calvarium; facial and left parietal region missing; appears to belong to an adult female (?).

Long oval in shape; sutures present; vault medium; temporal line, mastoid and supramastoidal crest mediumly developed; pre-auricular region greater than post-auricular; rounded occiput; nuchal line and muscle impressions medium; forehead retreating, medium in height and breadth.

Mandible represented by four fragments with 8 teeth *in situ*; muscle impression and wear of teeth medium.

M. XV

Skull — very small fragments—1 lot (child).
Teeth — 3 (milk); 1–adult upper molar—highly worn out.

(Total—2 individuals: adult–1, child–1)

M. XVI (adult)

Skull	—	fragments, comprising nearly complete left parietal and others.
Mandible	—	fragments—3.
Teeth	—	6, highly worn out.

(Adult—1)

M. XVII (adult, male)

Skull	—	missing in many parts, maxilla present in two fragments with nearly all teeth *in situ*.
Mandible	—	damaged with 15 teeth *in situ* (1 incisor missing).

(Adult—1)

Description of skull (M. XVII).—Long oval in shape; all sutures present ectocranially but fused endocranially; vault medium; mastoid and supramastoidal crest well developed; temporal line prominent; slightly retreating forehead; rounded occiput, marked asymmetry; superior nuchal line and muscle impressions marked; glenoid fossa shallow; palate deep; shovel-shaped incisor; teeth highly worn out. Breadth-height index—92·09 (acrocranial).

Mandible heavily built; prominent chin; muscle impressions prominent; teeth highly worn out.

The following measurements were possible:

Max. cranial breadth	—	139 mm.
Auriculo-bregmatic height	—	128 mm.
Bi-auricular breadth	—	121 mm.
Bi-mastoid breadth	—	100 mm.
Greatest occipital breadth	—	110 mm.
Parietal arc	—	126 mm.
Parietal chord	—	109 mm.
Occipital arc	—	115 mm.
Occipital chord	—	100 mm.
Min. breadth of ramus	—	31 mm.
Max. breadth of ramus	—	44 mm.
Symphyseal height	—	36 mm.
Breadth-height index	—	92·09

M. XVIII (adult)

Skull	—	fragments—1 lot including 5 fragments of maxilla with teeth (appears to belong to two adults) cranial bones very light, spongy and thick.

Mandible — fragments—3 (belong to two individuals).

The following measurements of the left side of the mandible were possible:

Min. breadth of ramus — 33 mm.
Max. breadth of ramus — 42 mm.
Height of ramus — 65 mm.

Loose teeth—3, highly worn out.

(Adult—2)

M. XIX

Skull — fragments—1 lot (adult).
Skull — fragments—1 lot (child).
Maxilla — fragments—2 (child) aged about 7 years.
Mandible — 1 complete with 7 teeth *in situ* aged as above and could be articulated to the maxilla.
Mandible — fragments—2 of another child—older than the above.
Mandible — fragment—1 (child) aged below 2 years.
Loose teeth — 7 (milk)—one incisor shovel-shaped.

(Total—4 individuals: adult–1, child–3)

The following measurements of the complete mandible were possible:

Min. breadth of ramus — 25 mm.
Max. breadth of ramus — 30 mm.
Height of ramus — 47 mm.
Symphyseal height — 21 (?) mm.
Bigonial breadth — 76 mm.

M. XIX A (child)

Skull — 1 calvarium, nearly complete.

Description of skull (M. XIX A).—Child, ultra-brachycranial (98·67); broad oval; sutures not discernible excepting the lambdoidal where it is partly seen; vault medium; mastoid and temporal crest weakly developed; occiput vertical (plano-occipital); two wormian bones present on lambdoidal suture; superior nuchal line and muscle impressions weakly developed; low, broad and vertical forehead.

The following measurements were possible:

Max. cranial length — 150 ? mm.
Max. cranial breadth — 148 mm.

Greatest frontal breadth — 120 ? mm.
Bi-mastoid breadth — 100 mm.
Length-breadth index — 98·67 ?

(Child—1)

M. XXI

Skull — (1) Fragment of an adult calvarium with fragmentary mandible and maxillary teeth.
Skull — (2) One very long calvarium (hyperdochocranial) of a child with very thin bones and a large number of wormian bones on the lambdoidal suture.
Skull — (3) Broken calvarium with very thin bones of another child appears to be much younger than (2), broad oval in outline.
Skull — (4) Fragments of a very small infant.
Maxilla — Fragments—4 (child).
Mandible — fragment of a child, may be associated with (2).

The 4 maxillary fragments belonged to two children, one about 7 years of age, while the other below 5 years of age. The former showed the I permanent molar whereas the latter showed only milk teeth.

(Total—4 individuals: adult–1, child–3)

M. XXII

Skull — One calvarium (adult) broken in many parts.
Skull — fragments—1 lot (appear to belong to a second adult; bones much thicker than the above).
Skull — fragments of a child—4.
Mandible — 1, left ascending ramus missing (adult).
Loose tooth — 1 (adult)—highly worn out.

(Total—3 individuals: adult–2, child–1)

Description of calvarium (M. XXII).—Distorted calvarium, long oval; parietals and facial portion missing; sagittal and lambdoidal suture present; cranial bone thick and heavy.

Right half of mandible : Chin prominent; muscle impressions well developed; teeth worn out.

The following measurements were possible:

Min. breadth of ramus — 32 mm.
Max. breadth of ramus — 43 mm.
Height of ramus — 69 mm.

M. XXIII (adult, male)

Skull — fragments—14 cranial bones thick; supraorbital ridges well developed.
(Adult—1)

M. XXIV (adult)

Skull — fragments—1 lot; occipital portion could fairly be restored.
Maxilla — fragments—2 with teeth highly worn out.
Mandible — 1 with 16 teeth *in situ*; teeth highly worn out; right ascending ramus missing; muscle impressions medium.
(Adult—1)

M. XXVI (adult)

Skull — fragments—1 lot (appear to belong to two adults) cranial bone of one thicker and heavier than the other.
Maxilla — fragments—3 (belong to two individuals).
(Adult—2)

M. XXVI A (adult)

Mandible — complete with 7 teeth *in situ*; heavy chin prominent; muscle impressions well developed; teeth highly worn out; right III molar not yet erupted but left present.

The following measurements of the mandible were possible:

Min. breadth of ramus — 31 mm.
Bigonial breadth — 109 mm.
Mandibular length — 67 mm.
(Adult—1)

M. XXVI B (adult)

Skull — fragment—1
Mandible — Right ascending ramus missing; 8 teeth *in situ*; prominent chin; muscle impressions less marked than M. XXVI A; teeth highby worn out.

The following measurement was possible:

Symphyseal height — 29 mm.
Loose teeth — 2 (adult)

(Adult—3)

M. XXVII

Skull — fragments—1 lot (adult).
Skull — fragments—1 lot (child).
Mandible — fragment—1 (adult) with 1 tooth *in situ*.
Mandible — fragment—1 (child) aged below 2 years.
Loose tooth — 1 (adult).

(Total—2 individuals: adult–1, child–1)

M. XXVIII

Skull — fragments—14 (child).
Mandible — fragment—1.
Loose teeth — 3 (adult), highly worn out.

(Total—2 individuals: adult–1, child–1)

M. XXIX (adult, male)

Skull — fragments—1 lot.
Mandible — fragments—3.

(Adult—1)

Description of skull (M. XXIX).—Large parts of parietals and facial region missing; appears to be hyperdolichocranial (Max. cranial length—193 mm.); supraorbital ridges very prominent; cranial bones thick; muscle impressions well developed; sagittal suture fused; mastoids very prominent.

Mandible, represented by the left half, appears to belong to an old person as judged from the fusion of the alveolar margin of the molar region. (Min. breadth of ramus—37 mm.).

M. XXX (child)

Skull — fragments including 2 of maxilla with 5 teeth *in situ*.
Mandible — fragments—3 with 7 teeth *in situ*, aged below 2 years.
Loose teeth — 16 (milk).

(Child—1)

M. XXXII

Skull — fragments—1 lot (appear to belong to 3 children).
Skull — fragments—2 (adult).

Maxilla — fragments—9 (child) aged below 2 years.
Mandible — fragment—1 (adult).
Mandible — fragments—2 (child) aged about 1 year.
(Total—4 individuals: adult–1, child–3)

M. XXXIII (adult)
Skull — fragments—1 lot, cranial bones thick temporal line prominent; a part of frontal bone could fairly be restored.
Mandible — fragments—3.
Loose teeth — 14, highly worn out.
(Adult—1)

M. XXXIV
Skull — fragments—14, including 2 of maxilla with 10 teeth *in situ* showing slight wear. The fragment of frontal bone is to some extent complete along with parts of the nasal bone. It indicates a narrow short forehead probably with a prominent nose, bones very thick.
(Adult—1)

M. XXXV (adult)
Skull — fragments—7, including a maxillary fragment with 3 left molars *in situ*.
Mandible — fragments—2 with 2 teeth *in situ*.
Loose teeth — 5.
(Adult—1)

M. XXXVI (child)
Fragments of a child cranium along with a mandible showing permanent and deciduous teeth, aged between 6 and 7 years.
Loose teeth — 4.
(Child—1)

M. XXXVII
Skull — fragments—1 lot (child).
(Child—1)

M. XXXVIII
Skull — Calvarium, nearly complete (adult, female).
Skull — fragments of another person.
Maxilla — 2, one nearly complete and a fragment of a second individual.

Mandible	—	1, nearly complete with 12 teeth *in situ* (not fitting to the maxilla).
Mandible	—	1 fragment of a second person.
Loose teeth	—	3.

(Adult—2)

Description of skull (M. XXXVIII) Adult female, mesocranial (78·49), hypsicranial (70·35) and, acrocranial (89·63).

Long oval in shape; all sutures present; vault medium; mastoid, supramastoidal crest and temporal line mediumly developed; pre-auricular region greater than post-auricular; forehead vertical, medium in height and breadth; occiput pentagonal in outline slightly bulging; nuchal line and muscle impressions medium in development.

Dental arch of maxilla and mandible parabolic in outline; palate deep; prominent chin; muscle impression medium in development; wear of teeth medium.

The maxilla and the mandible do not appear to belong to the same person.

The following measurements of the skull and mandible were possible:

Max. cranial length	—	172 mm.
Max. cranial breadth	—	135 mm.
Nasion-inion length	—	160 mm.
Auriculo-Bregmatic height	—	121 mm.
Least frontal breadth	—	94 mm.
Greatest frontal breadth	—	105? mm.
Bimastoid breadth	—	81 mm.
Transverse cranial arc	—	315 mm.
Horizontal circumference	—	481 mm.
Symphyseal height	—	27 mm.
Bi-auricular breadth	—	109 mm.
Frontal arc	—	112 mm.
Parietal arc	—	120 mm.
Frontal chord	—	100 mm.
Parietal chord	—	106 mm.
Length-breadth index	—	78·49
Length-height index	—	70·35
Breadth-height index	—	89·63

M. XXXIX (adult)

Mandible	—	fragment with 2 teeth *in situ*.

Loose teeth — 2, highly worn out.
(Adult—1)

M. XL (child)

Skull — fragments—1 lot (appear to belong to 3 children).
Maxilla — fragments—2(child) aged below 2 years.
Mandible — fragments—2 (child) of about the above age.

The following measurements of the mandible were possible:

Min. breadth of ramus — 18 mm.
Height of ramus — 34 mm.
(Child—3)

M. XLI

Skull — fragments—1 lot (adult) cranial bones spongy and light.
Skull — fragments—13 (child).
(Total—2 individuals: adult–1, child–1)

M. XLIV (child)

Skull — fragments—16
Mandible — 1 broken, aged about 1 year.
Loose tooth — 1 (milk).
(Child—1)

(ii) ARABIC NUMERAL SERIES

M. 1 (adult, male ?)

Skull — fragments of a calvarium could fairly be restored.
Loose tooth — 1.
(Adult—1)

*Description of skull (*M. 1*).*—Damaged calvarium with the facial region missing. Long oval in shape with greatest breadth at the parietal tuberosities, vault medium; forehead slightly retreating, low and medium in breadth; temporal line slightly marked; pre-auricular region nearly equal to the post-auricular; occiput rounded; superior nuchal line strongly developed; muscular impressions well-developed; mastoid process and mastoidal crest marked; sagittal and coronal sutures present ectocranially but fused endocranially; lambdoidal suture present on the left but fusion begun on right both ecto- and endocranially; glenoid fossa deep. Measurements in Table 16.

M. 2

Skull	—	fragments (infant).
Skull	—	fragments—2 (adult).
Skull	—	fragments of the frontal bone of a skull (child).
Maxilla	—	1 (child).
Mandible	—	1 (child) about 7 years of age, I permanent molar on either side, the rest being milk teeth.
Loose teeth	—	8 (milk).

(Total—3 individuals; adult–1, child–2)

M. 3 (adult)

Skull	—	fragments—1 lot (appear to belong to two adults); cranial bones thick and heavy.
Mandible	—	fragments—5 (appear to belong to two individuals); one fragment with 2 teeth *in situ*.
Loose teeth	—	23, two incisors partially shovel-shaped; wear of teeth medium.
Rib	—	fragments—2.

(Adult—2)

M. 4 (adult)

Skull	—	fragments—1 lot; cranial bones thick.
Maxilla	—	fragments—2 with 12 teeth *in situ*; palate deep; teeth highly worn out.
Mandible	—	fragments—2, with 13 teeth *in situ*; gonial angle slightly turned outwards; muscle impressions well developed; teeth highly worn out.
Loose teeth	—	2.

(Adult—1)

M. 5 (adult)

Skull	—	fragments—14.
Mandible	—	one fragment of right half.
Loose teeth	—	21, two incisors shovel-shaped, teeth highly worn out.

(Adult—1)

M. 6 (adult)

Skull	—	fragments—1 lot, cranial bones heavy and thick.

Mandible — fragment—1.
Loose teeth — 20, medium wear; two incisors shovel-shaped.
(Adult—1)

M. 7

Skull — one adult calvarium missing in many parts.
Skull — fragments—1 lot.
Skull — fragments of a child's calvarium.
Mandible — fragments—3.
Teeth — 19 (adult).
Rib — fragments—2.
Long bone fragments—3.
(Total—2 individuals: adult–1, child–1)

Description of skull (M. 7).—Damaged calvarium with thick cranial bone appears to be hyperdolichocranial (length of the cranium–193 mm. ?) ; sagittal and lambdoidal suture present; rounded occiput; narrow vertical forehead; temporal crest, superior nuchal line and muscle impressions well developed.

M. 9

Skull — fragments—1 lot (adult), cranial bones heavy and thick.
Maxilla — 1 nearly complete (adult) with 9 teeth *in situ.*
Mandible — 1 nearly complete (adult) with 8 teeth *in situ.*
Mandible — fragments—2 (child) aged about 10 years.
Loose teeth — 16 (adult–7; milk–8) milk incisors show labial ridging.
(Total—2 individuals: adult–1, child–1)

Skull fragmentary, restoration not possible, maxilla and mandible reconstructed; both show incomplete eruption of III molars, on the mandible at almost the level of the other teeth, on the maxilla still below the alveolar margin. The maxilla is peculiar in having the two canines in an irregular position. The right canine is lodged before I premolar, whereas the left canine is reversed upside down with its pointed crown upwards along the nasal aperture and above the I premolar; teeth not much worn out. The following measurements of the maxilla and the mandible were possible:

Maxillo-alveolar breadth — 60 mm.
Palatal breadth — 38 mm.
Bigonial breadth — 83 mm.
Max. breadth of ramus — 38 mm.
Min. breadth of ramus — 32 mm.
Mandibular length — 59 mm.
Mandibular angle — 119°

Two fragments of horizontal ramii of the either side of a mandible show in both complete eruption of the I molars, while in both the II molars are just emerging, and the III molars are yet deep inside the socket. It appears that the mandible belongs to a child above ten years old.

The following measurements were possible:

Max. breadth of ramus — 35 mm.
Min. breadth of ramus — 30 mm.

M. 10 (adult male)

Skull — One calvarium.
Maxilla — 1 with 13 teeth *in situ*, left lateral incisor and two III molars missing.
Mandible — 1 complete with 16 teeth *in situ*.

(Adult—1)

Description of skull (M. 10).—Calvarium with maxilla broken and mandible; dolichocranial (73·20), orthocranial (62·37), metriocranial (85·21).

Long oval; sagittal, coronal sutures present, parietal tuberosities marked, bulging occiput; vault high; forehead retreating; temporal crest medium; mastoids missing but well developed, supramastoidal crest medium; pre-auricular region greater than post-auricular; protuberant occiput; occiput pentagonal in outline; lamboidal suture present ectocranially but fused endocranially; superior nuchal line medium as also the muscle impressions; forehead retreating, medium in breadth and height; supraorbital ridges prominent, glenoid cavity very deep; palate deep U-shaped, alveolar margin divergent, all teeth present excepting left lateral incisor and the III molars.

Mandible : Complete excepting the two condyles, U-shaped, 16 teeth *in situ*, edge to edge bite, wear medium.

The measurements are given in Table 16.

M. 12 (adult)

Skull — fragments—18

Maxilla — fragment—1 with 4 teeth *in situ*, teeth with medium wear.
Mandible — 1, nearly complete with 6 teeth *in situ*, other teeth broken; chin prominent; muscle impressions well developed; teeth with medium wear.

The following measurements were possible:

Max. breadth of ramus — 42 mm.
Min. breadth of ramus — 32 mm.
Height of ramus — 60 mm.
Mandibular angle — 120°
Loose teeth —10, one premolar with two separate roots.

(Adult—1)

M. 13

Skull — 1 posterior half (adult).
Skull — fragments—1 lot (appear to belong to another adult).
Skull — fragments of a child.
Maxilla — fragments—2 with 6 teeth *in situ*.
Mandible — 1, complete (adult) with 13 teeth *in situ*.
Teeth — 9 (adult).
Rib fragments — 2.

(Total—3 individuals: adult–2, child–1)

Description of skull (M. 13)—Cranial bone medium in thickness; lambdoidal suture present; a large wormian bone present on right lambdoidal suture; rounded occiput.

Mandible—parabolic in outline; prominent chin; teeth with medium wear.

The following measurements were possible:

Max. breadth of ramus — 44 mm.
Min. breadth of ramus — 31 mm.
Height of ramus — 64 mm.
Symphyseal height — 30 ? mm.
Bigonial breadth — 92 mm.
Mandibular length — 63 mm.
Mandibular angle — 122°

M. 14

Skull — fragments—1 lot (appear to belong to at least five children).

Maxilla	—	fragments—5 (children) with milk teeth *in situ*; all below 5 years of age.
Mandible	—	fragments—11 with milk teeth *in situ*, all below 5 years of age.
Mandible	—	1 nearly complete (child); milk teeth erupting; aged below 1 year.
Mandible	—	fragment—1 (adult).
Loose teeth	—	3 (adult–1, milk–2).
Long bones	—	fragments—1 (child).
Ribs	—	fragments—1 (child).
Unidentified fragments	—	2 (animal bone?).

(Total—6 individuals: adult–1, children–5)

M. 15 (adult)

Skull	—	1 damaged (adult), cranial fragments show the presence of a second adult, with thicker cranial bones.
Mandible	—	right half—1 (adult).
,,	—	left half—2 (adult), indicating 2 persons.
Teeth	—	5.

(Adult—2)

Description of skull (M. 15).—Adult female (?) damaged, only calvarium present, long oval in outline, sagittal suture fused both endocranially and ectocranially; muscular impressions rather weak; forehead narrow, low and vertical.

M. 16 A

Skull	—	1 damaged (adult), cranial fragments indicate remains of another adult person.
Mandible	—	1 right half (adult).
Teeth	—	6 (milk).

(Total—3 individuals: adult–2, child–1)

Description of skull (M. 16 A).—Adult male, damaged, facial region missing; brachycranial (80·23), hypsicranial (70·93), acrocranial (88·41).

Broad oval; retreating forehead; broadest at the parietal tuberosities; coronal and sagittal sutures visible; one parietal foramen on left present; vault high; forehead retreating; occiput nearly planoccipital; mastoid process well developed; supramastoidal crest prominent; pre-auricular region greater than post-auricular; supraorbital ridges medium in development; forehead high and broad; occiput pentagonal in shape; lambdoidal sutures partly fused; mastoid well

developed; superior nuchal crest marked; muscular impressions prominent. (Measurements in Table 16).

Mandible : represented by a fragment of right half with 3 molars, 2 pre-molars and a broken canine *in situ* showing signs of medium wear.

M. 16 B

Skull — 1, damaged (adult).

(Adult—1)

Description of skull (M. 16 B).—Adult male, only calvarium present, a large fragment of the right side missing, bones very thick.

Broad oval in shape; coronal, sagittal and lambdoidal sutures present; forehead vertical, low and broad; supra-orbital ridges weakly developed; temporal crest medium; rounded occiput; muscular impressions medium.

Measurements are given in Table 16.

M. 17

Skull — fragments—8 (adult); frontal region could fairly be restored; cranial bones heavy and thick; sagittal and coronal sutures fused; supraorbital ridges, glabella and temporal line prominent; forehead retreating, low and medium in breadth, least frontal breadth—93 mm.

Skull — fragments—1 lot (child).

Maxilla — fragments—2 (adult) with 12 teeth *in situ*; teeth highly worn out.

Loose teeth — 2 (adult).

(Total—2 individuals: adult–1, child–1)

M. 18 (adult male)

Skull — calvarium with many parts missing.

Maxilla — fragment—1 (child).

Mandible — fragments—2 (adult).

Teeth — 28 (adult).

(Total—2 individuals: adult–1, child–1)

Description of skull (M. 18).—Calvarium with many parts missing; dolichocranial (74·59); hypsicranial (69·06), acrocranial (92·59).

Long oval in shape; all sutures present; vault medium; mastoid, supramastoidal crest, temporal line and temporal crest well marked; pre-auricular region nearly equal to post-auricular, occiput pentagonal in outline; nuchal line marked with a very prominent inion;

muscle impressions medium, forehead vertical; low, medium in breadth; supraorbital ridges prominent. (Measurements in Table 16).

Mandible—represented by fragments; heavily built; gonial angle rugous; chin prominent; muscle impressions marked; wear of teeth medium.

M. 19 A (adult)

Skull	—	fragments—1 lot (cranial bones heavy and thick).
Maxilla	—	fragments—2 with 11 teeth *in situ*; palate deep and broad; canine fossa medium; teeth with medium wear.
Mandible	—	fragments—5, with 6 teeth *in situ*; muscle impressions well developed, teeth with medium wear.
Loose teeth	—	4.

M. 19 B (child)

Skull	—	fragments—1 lot.
Loose teeth	—	1 (milk).

(Total—2 individuals: adult–1, child–1)

M. 20

Skull	—	fragments—2 (adult).
Skull	—	fragments—1 lot (appears to belong to two children).
Maxilla	—	fragment—1 (adult) with 5 teeth *in situ*; teeth highly worn out.
Mandible	—	fragment—1 (child) with 1 milk molar *in situ*; aged below 2 years.
Loose tooth	—	1 (adult).

(Total—3 individuals: adult–1, children–2)

M. 21

Skull	—	fragments (child).
Loose teeth	—	2 (adult).

M. 21 A (adult, male)

Skull	—	one distorted calvarium, facial and parietal regions missing; hyperbrachycranial (85·47), hypsicranial (74·42), acrocranial (87·07).

Description of skull (M. 21 A).—Broad oval; sagittal, coronal and lambdoidal sutures present but fusions of the first begun from bregma; vault medium; mastoid, supramastoidal crest and temporal

crest medium; occiput pentagonal in shape, slightly rounded occiput; nuchal line and muscle impressions well developed; broad vertical forehead, medium in height; supraorbital ridges and styloid process well developed. (Measurements in Table 16).

M. 21 B (adult)

Skull — fragments—9

21 (i) (adult)

Mandible — 1, almost complete with condyles missing and 15 teeth *in situ*; prominent chin; muscle impressions medium in development, wear medium. (Symphyseal height—27 mm.)

No Number

Skull — fragments—2 (adult), cranial bones thicker than 21A and 21B.

Loose teeth — 11 (adult–4, milk–7).

Number indistinct (adult)

Mandible — 1, right half missing; left II and III molars present *in situ*; chin prominent, angle of jaw turned outwards; muscle impressions well developed; wear of teeth medium. (Minimum breadth of ramus—32 mm.)

(Total—8 individuals: adult–6, children–2)

M. 22

Skull — fragments—1 lot (child), parietal regions could fairly be restored, cranial bones thin and light; all sutures present.

Mandible — fragment—1 (child).

Loose teeth — 3 (adult).

(Total—2 individuals: adult–1, child–1)

M. 24 (adult)

Skull — fragments—1 lot

(Adult—1)

M. 25

Skull — fragments—1 lot (appear to belong to two individuals—one adult and one child); frontal and occipital region of the adult could be restored. Cranial bones thick; temporal line, supraorbital

ridges, nuchal line and muscle impressions well developed; coronal suture and part of lambdoidal suture present.

Maxilla — fragments—3 (adult) with 11 teeth *in situ*; palate deep; wear of teeth medium but left I molar highly worn out.

Maxilla — fragment—1 (child) with 3 milk teeth *in situ*; aged about 7 years.

Mandible — 1 nearly complete (adult) with 13 teeth *in situ*; insertion of III molars abnormal in not being vertical in position but bent laterally and anteriorly; wear of teeth medium but left I molar highly worn out; chin prominent; muscle impressions mediumly developed.

The following measurements were possible:

Max. breadth of ramus — 40 mm.
Min. breadth of ramus — 29 mm.
Symphyseal height — 34 mm.
Loose teeth — 5 (adult).

(Total—2 individuals: adult–1, child–1)

M. 26 (adult, female)

Skull — one calvarium.
Fragments — 1 lot.
Mandible — complete with teeth.
Loose teeth — 10 (3 incisors shovel-shaped).

(Adult—1)

Description of skull (M. 26).—Adult female; facial region missing; mesocranial (78·92), hypsicranial (66·87), metriocranial (84·73).

Oval in shape; all sutures present ectocranially excepting the sagittal which is completely fused endocranially; fusion of lambdoidal suture begun endocranially; vault medium; temporal crest, mastoids and the supramastoidal crest weak in development; pre-auricular region greater than post-auricular; forehead vertical, low and medium; occiput pentagonal in outline and rounded; nuchal line weak as also muscle impressions. A small wormian bone is present on the right lambdoidal suture.

Mandible : Complete with 8 teeth *in situ*; III molars unerupted; parabolic in outline; muscular impressions weak: wear of teeth medium but marked on right I molar.

Measurements are given in Table 16.

M. 27

Loose teeth — 33 (adult–13, milk–20), 2 adult incisors partially shovel-shaped.

M. 27 A (adult, male)

Skull — fragments—10.
Maxilla — fragment—with 1 tooth *in situ*.
Mandible — 1 nearly complete with 6 molars (right and left) *in situ*; dental arch parabolic in outline; prominent chin; wear of teeth medium. (Min. breadth of ramus —32 mm.)

M. 27 B (child)

Skull — fragments—1 lot.
Maxilla — fragments—2 with milk teeth *in situ*, aged above 3 years.
Mandible — fragments—3 (appear to belong to three children), with milk teeth *in situ*, aged above 3 years.

(Total—4 individuals: adult–1, children–3)

M. 28

Skull — 1 (child).
Maxilla — fragments—4 (belong to one adult and one child).
Mandible — fragments—3 (belong to one adult and one child).
Loose teeth — 13 (adult–5, milk–8).

(Total—2 individuals: adult–1, child–1)

Description of skull (M. 28).—Child (max. cranial length–157 mm.); large fragments missing; bones very thin and light; long oval; forehead vertical, low and narrow; lambdoidal suture present.

M. 28 A

This number has only been found on the frontal fragment of a child's skull.

M. 29

Skull — fragments—11 (child).
Mandible — 1 (adult), appears to belong to M. 29 B.

M. 29 A

Skull — adult male (?), fragment of posterior region.

Description of skull (M. 29 A).—Adult male (?), represented by the posterior half of the skull cap. Bones very thick, coronal sutures fused both ectocranially and endocranially; lambdoidal suture partially fused endocranially; well developed mastoids curved inwards; superior nuchal lines well developed as also the muscle impressions; occipital region rounded in the form of a bulge; supratemporal lines well developed.

M. 29 B

Skull	—	adult, male, damaged.
Fragments	—	1 lot.
Loose teeth	—	5 (milk–4, adult–1).

(Total—3 individuals: adult–2, child–1)

Description of skull (M. 29 B).—Adult male, mesocranial (77·84), hypsicranial (70·45), acrocranial (90·51).

Broad oval; coronal, sagittal and lambdoidal sutures present; vault high; temporal crest medium; mastoid process well developed; mastoidal crest prominent; pre-auricular region greater than post-auricular; occiput pentagonal in outline; superior nuchal line marked as also the muscular impressions; retreating forehead; medium in height and breadth; supraorbital ridges medium in development. Measurements in Table 16.

M. 30

Skull	—	1 damaged (young adult ?). Among the cranial fragments remains of an adult were found.
Mandible	—	fragments—2.
Loose teeth	—	8.

(Adults—2)

Description of skull (M. 30).—Mesocranial (76·83), (max. length–164 mm., max. breadth–126 mm.). Young adult, represented by a calvarium missing in many parts, all cranial sutures present; long oval in shape, broadest at the parietal tuberosities; forehead retreating; occiput with a rounded bulge; muscular impressions poorly developed. There are two openings on each side of the sagittal suture—that on the left shows signs of trepaning while that on the right appears to be due to disintegration.

Mandible represented by a fragment of the left half and two other small fragments with 5 molars *in situ* showing signs of medium wear.

M. 31

Skull — nearly complete, of an adult female with a mandible.
Skull — fragments—4 (belongs to another skull) with very thick cranial bones.
(Adults—2)

Description of skull (M. 31).—Adult female with frontal portion missing and a broken maxilla; metriocranial (81·48).

Broad oval; broadest at the parietal tuberosities; sagittal sutures present; coronal suture partly fused; vault high; mastoid process mediumly developed; zygomatic arch slender, forehead broad, occiput rounded; interparietal depression present with two parietal foramina on either side of the sagittal suture; muscular impressions weakly developed; glenoid fossa medium in depth and breadth; maxilla with parabolic dental arch; teeth show deep wear; III molars absent.

Mandible : Complete with 14 teeth *in situ*; III molars not erupted; chin prominent; muscular ridges weakly developed; teeth highly worn out. Measurements in Table 16.

M. 32 (child)

Skull — fragments—1 lot.
Maxilla — fragments—2, with milk teeth *in situ*.
Mandible — fragments—3, with milk teeth *in situ* (appear to belong to two children).
Loose teeth — 4 (milk).
Unidentified fragment —1.
(Children—2)

M. 33 (child)

Skull — fragments—1 lot (appear to belong to three children—as seen from three occipitals).
Maxilla — 1, complete with 4 milk teeth *in situ*; palate shallow; aged about 5 years.
Maxilla — fragments—2 (appear to belong to another child).
Mandible — 1 complete with 4 milk molars *in situ* (appears to belong to the above complete maxilla), (min. breadth of ramus–25 mm.).
Mandible — fragments—3, aged below 1 year.

Loose tooth — 1 (milk).
(Children—3)

M. 34 (Adult)

Mandible — fragment of left ascending ramus; heavy and broad; angle of the jaw turned outwards; muscle impressions well developed.

The following measurements were possible:

Max. breadth of ramus — 46 (?) mm.
Min. breadth of ramus — 41 mm.
Height of ramus — 72 mm.
Loose teeth — 2, show signs of medium wear.
(Adult—1)

M. 37 A (adult male)

Skull — Calvarium, facial portion and part of the frontal bone missing.

Description of skull (M. 37 A).—Facial and part of frontal bone missing; bones thick; metriocranial (84·03); (frontal bone wrongly restored previously).

Broad oval in shape; all sutures fused endocranially, vault medium; temporal crest, mastoid and supramastoidal crest well developed; forehead retreating; medium in height and breadth; supraorbital ridges prominent; occipital region pentagonal in outline; bulging occiput; nuchal line marked with a very prominent inion; muscle impressions well developed; glenoid fossa shallow.

The following measurements were possible:

Max. cranial breadth — 144 mm.
Auriculo-bregmatic height — 121 mm.
Breadth-height index — 84·03

M. 37 B (adult male)

Skull — anterior half of a calvarium and fragment of maxilla with 14 teeth *in situ* and other fragments.
Mandible — 1 left half with 6 teeth *in situ.*
Loose teeth — 6

Description of skull (M. 37 B).—Adult, calvarium appears to be similar to M. 37 A in cranial form; palate deep, horse-shoe shaped; wear of teeth medium.

The following measurements were possible:

Least frontal breadth — 96 mm.

Maxillo-alveolar breadth — 63 mm.
Palatal breadth — 44 mm.
Height of ramus — 54 mm.

(Adult—2)

M. 38 (adult)

Skull — fragments—1 lot (appear to belong to two adults), cranial bones thick.
Maxilla — fragments—2, with 6 teeth *in situ*; teeth highly worn out.
Mandible — fragments—2 with 2 teeth *in situ*, teeth highly worn out.
Loose teeth — 19, three incisors shovel-shaped; one premolar shows two separate teeth roots with medium wear.

(Adult—2)

M. 39 (adult)

Skull — fragments—3, occipital region could fairly be restored; lambdoidal suture present but fusion of sagittal suture begun; rounded occiput but flattened at the region above lambda; nuchal line and muscle impressions well developed; cranial bones thick and heavy.
Mandible — 1, nearly complete with 5 teeth *in situ;* dental arch parabolic in outline; prominent chin; wide gonial angle; teeth highly worn out.

The following measurements were possible:

Min. breadth of ramus — 31 mm.
Symphyseal height — 23 (?) mm.
Bigonial breadth — 87 mm.
Mandibular length — 61 mm.
Loose teeth — 2

(Adult—1)

M. 40 (adult)

Skull — fragments—4.
Mandible — 1 right half (min. breadth of ramus–29 mm).
Loose teeth — 5.

M. 40 A (adult)

Skull	—	fragments—1 lot, frontal bone nearly complete; cranial bones thick.
Maxilla	—	fragments—2 with 3 teeth *in situ*; palate deep; teeth with medium wear.
Loose tooth	—	1.

M. 40 B (adult)

Skull	—	fragments—4.

M. 40 C (child)

Skull	—	fragments—1 lot.
Loose teeth	—	8 (milk).

(Total—4 individuals: adult–3, child–1)

M. 41 (adult)

Skull	—	fragments—11.

(Adult—1)

M. 43

Skull	—	fragments—1 lot (adult); cranial fragments thick, light and spongy in nature.
Skull	—	fragments—1 lot (child).
Mandible	—	1 complete (adult) with 13 teeth *in situ*; right canine and II premolar and left medial incisor missing; 2 right incisors peg-shaped; wear medium; dental arch parabolic in outline; prominent chin; muscle impressions well developed.
Mandible	—	fragment—(appears to belong to another adult), with 12 teeth *in situ*; jaw comparatively lighter than the above; all 4 incisors peg-shaped; teeth very much worn out than the former.
Loose tooth	—	1 (animal).

The following measurements of the mandible were possible:

Bigonial breadth	—	87 mm.
Max. breadth of ramus	—	37 mm.
Min. breadth of ramus	—	31 mm.
Height of ramus	—	50 mm.
Symphyseal height	—	28 mm.
Mandibular length	—	68 mm.
Mandibular angle	—	118°

(Total—3 individuals: adult–2, child–1)

M. 44

Skull	—	one calvarium with a fragment of occipital bone and a maxilla with 15 teeth *in situ* (adult, male).
Skull	—	one fragment belong to another individual (adult).
Skull	—	fragment of a child.
Mandible	—	1 with 10 teeth *in situ* (adult).
Mandible	—	1 right half with 7 teeth (III molar broken) of another individual.

(Total—3 individuals: adult–2, child–1)

Description of skull (M. 44)—Adult male; facial and part of occipital region missing; dolichocranial (70·27 ?), hypsicranial (64·32?), acrocranial (91·54).

Long oval in shape; all sutures present; vault medium; mastoid, supramastoidal and temporal crests well developed; pre-auricular region greater than post-auricular; occiput pentagonal in outline; wormian bones present on lambdoidal sutures; muscle impressions well developed; forehead retreating; medium in height and breadth supra-orbital ridges well developed; glenoid fossa medium in depth and breadth; styloid process well developed; palate deep, parabolic in outline; III molar on left side peg-shaped; wear of teeth medium.

Mandible : Represented by a complete lower jaw with 10 teeth *in situ*; chin prominent; muscle impressions mediumly developed III molars unerupted; wear of teeth medium. Measurements in Table 16.

M. 46

Skull	—	Calvarium with many parts missing (adult male).
Skull	—	fragments including 2 pairs of maxilla (appear to belong to two children).
Mandible	—	fragments—4 (adult).
Mandible	—	complete (child) about 7 years of age.
Teeth	—	14 (milk–6, adult–8).
Animal bone	—	1 fragment.

(Total—3 individuals: adult–1, child–2)

Description of skull (M.46).—Adult male; appears to be hyperdolichocranial; bones thick; many parts missing; (frontal region wrongly restored previously).

Elongated; all sutures fused; forehead vertical, low and medium

in breadth; supraorbital ridges prominent; temporal crest, nuchal line and muscle impressions well developed.

Mandible : Represented by fragments; heavily built; muscle impressions prominent; ascending ramus (minimum breadth–45 mm.); wear of teeth medium.

M. 51

Skull	—	fragments—1 lot (appears to belong to two children).
Skull	—	fragments—13 (adult); occipital region could be restored; a wormian bone (20 mm. x 19 mm.) present on the left lambdoidal suture; nuchal line and muscle impressions well developed; cranial bones heavy and thick.
Maxilla	—	fragments—2 (child) with milk teeth *in situ*; aged about 3 years.
Mandible	—	1 nearly complete (child).
Mandible	—	1 nearly complete (adult) with the left II molar only *in situ*, others broken at the neck; prominent chin; muscle impressions well developed; angle of jaw turned outwards.

The following measurements of the adult mandible were possible:

Min. breadth of ramus	—	30 mm.
Bigonial breadth	—	96 mm.
Mandibular length	—	69 mm.
Symphyseal height	—	32 ? mm.
Loose teeth	—	5 (milk).

(Total—3 individuals: adult–1, children–2)

M. 52 (Adult)

Skull	—	fragments—12, part of occipital region could be restored; cranial bones thick and heavy; nuchal line and muscle impressions well developed.
Mandible	—	1, left half with 11 teeth *in situ*; prominent chin; muscle impressions well developed; incisors peg-shaped; teeth highly worn out.

The following measurements of the mandible were possible:

Min. breadth of ramus — 32 mm.

Symphyseal height — 30 ? mm.
Loose tooth — 1.
(Adult—1)

M. 54

Skull — fragments—1 lot (adult).
Skull — fragments—1 lot (appears to belong to two children).
Maxilla — fragments—3 (child) with milk teeth *in situ*; aged 2–3 years.
Mandible — fragments—5 (appears to belong to three children), with milk teeth *in situ*.
Loose teeth — 5 (adult–2, milk–3), one adult tooth shows caries.
(Total—4 individuals: adult–1, children–3)

M. 57

Maxilla — fragments—2 (child) with milk teeth *in situ*, aged about 7–8 years.
Mandible — fragments—4 (appears to belong to two children) one aged about 7–8 years and the other below 1 year.
Loose teeth — 3 (milk); one incisor shovel-shaped with labial ridges.

M. 57 A

Skull — fragments—1 lot (child).

M. 57 B

Skull — fragments—1 lot (adult).

M. 57 C

Skull — fragments—4 (adult).

M. 57 D

Skull — fragments—1 lot (child).
(Total—4 individuals: adults–2, children–2)

M. 59 (adult, male ?)

Skull — fragments—1 lot, cranial bones very thick and heavy.
Maxilla — fragments—3, with 9 teeth *in situ*; teeth highly worn out.
Mandible — fragments—4, with 6 teeth *in situ*; heavy; muscle impressions well developed; teeth highly worn out.
Loose teeth — 2.
(Adult—1)

M. 62 (adult)

Skull — fragments—13.
(Adult—1)

M. 65 (adult)

Skull — fragments—1 lot including maxillary and mandibular fragments.

Loose teeth — 20 associated with an animal teeth.
(Adult—1)

M. 66

Skull — fragments—12 (adult, male ?) cranial bones heavy and thick; highly retreating forehead with prominent glabella.

Skull — fragments—6 (appear to belong to another adult) cranial bones thick and spongy in nature.

Skull — fragments—1 lot (appears to belong to three children).

Maxilla — fragments—3 (appear to belong to two children) with milk teeth *in situ* both aged below 2 years.

Mandible — fragments—4 (appear to belong to two children) with milk teeth *in situ* both aged below 2 years.

Mandible — fragment—1 (adult) with 3 teeth *in situ*; wear of teeth medium.

Loose teeth — 8 (adult–3, milk–5).
(Total—5 individuals: adult—2, children—3)

M. 67

Skull — fragments—1 lot (adult).

Skull — fragments—1 lot (child).

Maxilla — fragment—1 (child with 2 milk teeth *in situ* aged about 3 years.

Mandible — fragments—2 (child) with 3 milk teeth *in situ* aged about 3 years.

Loose teeth — 10 (adult–5, milk–5), 1 partially shovel-shaped incisor showing labial ridges.
(Total—2 individuals: adult–1, child–1)

M. 69 (adult, male)

Skull — one calvarium and a maxilla with 6 teeth *in situ*.

Mandible — 1 with 13 teeth *in situ*.
Loose teeth — 5.

Maxilla and mandible does not appear to belong to the same individual.

(Adult—2)

Description of skull (M. 69).—Adult male calvarium with separated maxilla; mesocranial (75·14), hypsicranial (65·54), acrocranial (87·22).

Long oval, broadest below the parietal tuberosities; all sutures present except the left coronal suture which is fused ectocranially; vault medium; mastoid broken but well developed; pre-auricular region greater than post-auricular; forehead vertical, low and medium in breadth; supraorbital ridges perceptible; occiput pentagonal in outline and bulging; lambdoidal suture fused endocranially; nuchal line and muscle impressions medium in development; glenoid fossa shallow; palate deep; dental arch horse-shoe shaped; teeth with medium wear.

Mandible : Complete with 13 teeth *in situ*; parabolic in outline, III molars unerupted; wear of teeth medium; chin prominent muscle impressions mediumly developed (Measurements in Table 16).

M. 70

Skull — fragments—2 (adult).
Loose teeth — 2 (milk).

(Total—2 individuals: adult–1, child–1)

M. 72 (child)

Skull — fragments—1 lot (appear to belong to three children).
Maxilla and Mandible — fragments—14, appear to belong to three children, one below 5 years of age and the other two below 2 years.
Loose teeth — 9 (milk).

(Child—3)

M. 73

Skull — fragments—1 lot (appear to belong to two adults).
Skull — fragments—1 lot (child).
Maxilla — 1 complete with 13 teeth *in situ* (adult).
Maxilla — fragment—1 (child).

Mandible — 1 (adult) complete with 15 teeth *in situ*; does not appear to belong to the adult maxilla mentioned above.
Mandible — fragment—1 with 3 molars (belong to another adult).
Loose teeth — 15 (adult).

The following measurements of the complete adult mandible were possible:

Bigonial breadth — 95 (?) mm.
Max. breadth of ramus — 42 (?) mm.
Min. breadth of ramus — 32 mm.
Height of ramus — 63 mm.
Symphyseal height — 29 (?) mm.
Mandibular length — 68 mm.
Mandibular angle — 120°

M. 73 A (Adult, male)

Skull — one cranium.

(Total—4 individuals: adult–3, child–1)

Description of skull (M. 73 A).—Large, heavy, voluminous cranium; many parts missing; cranial bones thick; brachycranial (84·21), hypsicranial (71·58), metriocranial (85·00).

Very broad to round in shape; all sutures present; high vault; mastoid and temporal line well developed; forehead vertical, broad and medium in height; supraorbital ridges well developed; occiput pentagonal in outline; a large wormian bone and a small one present on the left and right lambdoidal sutures respectively; flattened occiput; nuchal line and muscle impressions well developed. Measurements in Table 16.

M. 74 (adult)

Skull — fragments—1 lot, cranial bones heavy and thick; frontal and left parietal regions could be restored.
Maxilla — fragments—3 with 11 teeth *in situ*; 4 incisors shovel-shaped; teeth with medium wear.
Mandible — 1 nearly complete with 15 teeth *in situ*; chin prominent, muscle impressions well developed; right III molar just above the alveolar margin, left missing; wear medium.

The following measurements of the mandible were possible:

Min. breadth of ramus — 33 mm.
Symphyseal height — 30 (?) mm.
Bigonial breadth — 77 (?) mm.
Mandibular length — 66 mm.
Loose teeth — 4.

(Adult—1)

M. 75

Skull — distorted fragmentary calvarium and a lot of fragments including 3 fragments of maxilla (adult).
Skull — fragments—1 lot (child).
Mandible — fragments—3, with 7 teeth *in situ* (adult).
Loose teeth — 2.

(Total—2 individuals: adult–1, child–1)

Description of adult calvarium (M. 75).—Large fragments of left parietal, frontal and facial regions missing; cranial bones thick, mastoid prominent; supramastoidal crest mediumly developed; all sutures fused; occiput rounded; lambdoidal suture present; muscle impressions well developed, teeth hightly worn out.

M. 77 (adult)

Skull — distorted calvarium with many parts missing and a separated maxilla with 14 teeth *in situ*; III molar below alveolar margin; 4 shovel-shaped incisors.
Skull — fragments—1 lot.
Mandible — 1 right fragment with 7 teeth *in situ*; III molar erupted; wear of teeth medium.

(Adult—1)

M. 80 (adult)

Skull — fragments—9.
Maxilla — with 11 teeth *in situ*; 4 incisors and left canine broken at the neck; dental arch parabolic in outline; palate deep and broad nasal aperture amblycraspedote; prognathism present; muscle impressions well developed; wear of teeth medium.

The following measurements of the maxilla were possible:

Maxillo-alveolar breadth — 67 mm.
Palatal length — 50 (?) mm.
Palatal breadth — 47 mm.
Palatal index — 94·00

Maxilla — fragments—1 (appear to belong to a second adult) with 2 teeth *in situ*; teeth highly worn out; one tooth shows sign of caries.

Mandible — 1, nearly complete—appears to belong to an old person because of the fusion and sagging of alveolar margin; wide gonial angle; chin prominent.

The following measurements of the mandible were possible:

Max. breadth of ramus — 38 mm.
Min. breadth of ramus — 29 mm.
Symphyseal height — 24 mm.
Loose teeth — 5.

(Adult—3)

M. 81 (child)

Skull — fragments—1 lot.

(Child—1).

M. 83

Skull — fragments—1 lot (adult).
Skull — fragments—12 (child).
Mandible — fragments—2 (adult).

The following measurements of the mandible were possible:

Max. breadth of ramus —42 (?) mm.
Min. breadth of ramus —33 mm.

Mandible — fragment—(child) with 2 milk teeth *in situ*.

Loose teeth — 2 adult—1, milk—1.

(Total—2 individuals: adult–1, child–1).

M. 84

Skull — fragments—1 lot (appear to belong to an adult and a child).
Mandible — fragments—2 (adult).
Loose teeth — 11 (milk).

(Total—2 individuals: adult–1, child–1).

M. 86 (child)

Skull	—	fragments—1 lot.
Maxilla	—	fragments—3 with milk teeth *in situ*, left lateral incisor shovel-shaped, aged about 10 years.
Mandible	—	fragments—3 with milk teeth *in situ*, aged about 10 years.
Loose teeth	—	6 (milk), 2 incisors shovel-shaped.

(Child—1)

M. 89 (child)

Skull	—	fragments—5.
Maxilla	—	fragments—2 with milk teeth *in situ*, aged between 9 and 10 years.
Mandible	—	fragments—3 with milk teeth *in situ*, aged between 9 and 10 years.
Loose teeth	—	6 (milk).

(Child—1)

M. 91 (child)

Skull	—	fragments—2.

(Child—1)

M. 95 (adult)

Skull	—	1 adult male, including 2 fragments of maxilla.
Skull	—	fragments—1 lot (appear to belong to another individual).
Mandible	—	fragments—2 (adult).
Loose teeth	—	8 (adult).

(Adult—2)

Description of skull (M. 95).—Adult, male, broken calvarium with thick bones; part of the frontal bone missing; elongated; broad at the parietal tuberosities; coronal and sagittal suture fused both ecto- and endocranially; bregma could not be determined; vault medium; pre-auricular region greater than post-auricular; mastoids and supramastoidal crest mediumly developed; rounded occiput; muscle impressions weak; teeth deeply worn out.

Mandible—prominent chin; muscle impressions medium in development; III molars erupted; teeth highly worn out and crowded.

M. 96

Skull	—	fragments—3 (adult).
Skull	—	fragments—1 lot (child).

Mandible — fragments—2 (child) aged above 1 year.
Loose teeth — 10 (adult–6, milk–4).
Total—2 individuals: adult–1, child–1)

M. 101 (adult)
Skull — fragments—1 lot (appear to belong to two adults), cranial fragments of one individual heavy and thick.
Mandible — fragments—3 with 12 teeth *in situ*; teeth highly worn out.
Loose teeth — 4, one incisor shovel-shaped.
(Adult—2)

M. 103 (child)
Skull — fragments—1 lot.
Maxilla — fragments—2 with milk and permanent teeth *in situ*, aged about 5 years.
Mandible — fragments—2 with milk teeth *in situ*, aged about 5 years.
Loose teeth — 6 (milk).
(Child—1)

M. 104 (adult, male)
Skull — fragments—1 lot, cranial bones heavy and thick.
Maxilla — fragments—2 with 1 tooth *in situ*.
Mandible — 1, nearly complete with 7 teeth *in situ*; chin prominent; teeth highly worn out. (Min. breadth of ramus—34 mm.)
Loose teeth — 19.
(Adult—1)

M. 105 (adult)
Skull — fragments—1 lot, cranial bone thick, heavy and spongy in nature.
Maxilla — fragments—3, with 13 teeth *in situ*; teeth with medium wear.
Mandible — fragments—2, with 5 teeth *in situ*; chin prominent; teeth with medium wear.
(Adult—1)

M. 106 (adult, male ?)
Skull — fragments—1 lot, cranial bones heavy and very thick; mastoids, supramastoidal crest, temporal line, glabella and

supraorbital ridges prominent (all observed from fragments—restoration not possible).

Maxilla — fragments—3, with 7 teeth *in situ*; teeth highly worn out.

Mandible — fragment—1.

Loose teeth — 2.

(Adult—1)

M. 107 (adult, male)

Skull — one calvarium, with fragments.

Maxilla — fragments—3.

Mandible — complete with 9 teeth *in situ*.

Loose teeth — 3.

(Adult—1).

Description of skull (M. 107).—Adult male, calvarium with a broken fragment of maxilla; part of frontal bone missing (wrongly restored previously).

Broad oval, asymmetrical with prominent parietal tuberosities; all sutures fused except the lambdoidal which is partially fused ectocranially; vault medium; mastoid well developed; forehead markedly sloping, straight and medium in height; occiput pentagonal in outline, flat with slight curvature; muscular impressions medium; glenoid fossa medium in breadth and depth; maxillary dentition parabolic with 9 teeth *in situ* showing signs of deep wear.

Mandible : Represented by anterior half with 9 teeth *in situ*; heavily built with prominent chin; teeth very much worn out.

The following measurements were possible:

Max cranial breadth —141 mm.

Least frontal breadth — 97 mm.

Bi-auricular breadth —120 mm.

Greatest occipital breadth —102 mm.

M. 108 (adult male)

Skull — Calvarium with a large part of frontal bone missing, maxilla with 14 teeth *in situ*; left II and III molars missing. Mandible almost complete, fits well with the above maxilla.

Skull — Fragments of child with 2 fragments of maxilla and 1 fragment of mandible—both with milk teeth *in situ*, upper jaw

shows one permanent I molar, aged about 8 years.

M. 108 A (adult)

Skull —fragments—8, very thick bones.

(Total—3 individuals: adults–2, child–1)

M. 109

Skull — fragments—1 lot (adult), cranial bones thick; mastoid and supramastoidal crest well developed.

Skull — fragments—1 lot (appear to belong to two children).

Maxilla — fragment—1 (adult).

Mandible — fragments—(adult) with 10 teeth *in situ*; teeth highly worn out

Mandible — fragments—3 (child) with 8 milk teeth *in situ*, aged 2—3 years.

Loose teeth — 3 (adult–2, milk–1).

(Total—3 individuals: adult–1, children–2)

M. 110

Skull — fragments—8 (adult).

Maxilla — fragments—2 with 2 teeth *in situ*.

Mandible — fragment—3 (child) with 5 teeth *in situ*, aged about 12 years.

Loose tooth — 1 (milk).

(Total—2 individuals: adult–1, child–1)

M. 111 (Adult male)

Skull — fragments—5, cranial bone very thick; well developed supraorbital ridges; glabella marked.

Maxilla — 1, complete with 13 teeth *in situ*; palate deep, horse-shoe shaped in outline; III molars erupted but not yet in line with other teeth.

The following measurements of the maxilla were possible:

Maxillo-alveolar breadth —70 mm.

Palatal breadth —50 mm.

Mandible — 1, with 14 teeth *in situ*; vertical ramii missing; dental arch parabolic in outline; prominent chin; teeth with medium wear; symphyseal height—30 mm.

The mandible and the maxilla do not appear to belong to the same person.

(Adults—2)

M. 112

Skull — posterior half of adult male calvarium including a maxilla; lambdoidal and sagittal sutures present; bulging occiput; muscle impressions marked; wear of teeth medium. Max. cranial breadth—136 mm.

Skull — fragments—1 lot (child).

(Total—2 individuals: adult–1, child–1)

M. 114

Skull — fragments—1 lot (adult).

Loose teeth — 5 (adult–2, milk–3).

(Total 2 individuals: adult–1, child–1)

M. 115 (Adult)

Skull — fragments—2, cranial bones thick and heavy.

Mandible — fragments—3.

Loose teeth — 2.

(Adult—1)

M. 116 (Adult)

Skull — calvarium with many parts missing (adult male).

Skull — fragments including one maxilla—1 lot (appear to belong to another adult).

Mandible — 1, complete with 7 teeth *in situ*.

Loose tooth — 1.

(Adults—2)

Description of skull (M. 116).—Adult male calvarium with many parts missing; appears to be hyperdolichocranial in form; acrocranial (91·20).

Elongated; all sutures present but fusion of sagittal suture begun; medium vault; temporal crest weakly developed; mastoid and supramastoidal crest mediumly developed; occipital region pentagonal in outline; bulging occiput; muscle impressions medium in development; forehead retreating, medium in height and breadth; glenoid fossa shallow.

Mandible—Complete with 7 teeth *in situ*; wear of teeth marked; chin prominent; muscle impressions medium.

The following measurements were possible:

Max. cranial breadth	—	125 mm.
Auriculo-bregmatic height	—	114 mm.
Breadth-height index	—	91·20
Min. breadth of ramus	—	30 mm.
Symphyseal height	—	31 mm.
Height of ramus	—	62 mm.
Mandibular angle	—	121°

M. 117 (adult male)

Skull	—	1 posterior half of a calvarium including a maxilla with 14 teeth *in situ*; maxilla—deep, parabolic in shape; teeth highly worn out.
Skull	—	fragments—1 lot.

(Adult—1)

M. 118

Skull	—	fragments—1 lot (appear to belong to two children).
Maxilla	—	fragment—1 (child) with milk teeth *in situ*, aged below 5 years.
Maxilla	—	fragment—1 right half with I and II milk molars *in situ*.
Mandible	—	fragment—1 with milk teeth *in situ*.
Loose teeth	—	3 (adult–1, milk–2), adult incisor shovel-shaped.

(Total—3 individuals: adult–1, children–2)

M. 119 (adult)

Skull	—	fragments—5.
Loose teeth	—	4; 1 incisor shovel-shaped.

(Adult—1)

M. 120 (child)

Skull	—	fragments—1 lot.
Maxilla	—	fragment—1 with 1 tooth *in situ*.
Mandible	—	1 right half.

(Child—1)

M. 121

Skull	—	fragments—1 lot (adult)—cranial bone heavy and thick.

Skull — fragments—1 lot (appear to belong to two children).
Maxilla — fragment—1 (child) with milk teeth *in situ*.
Maxilla — fragment—1 (adult) with one tooth *in situ*.
Mandible — fragment—1 (adult) with right II and III molars *in situ*.
Mandible — fragments—2 (child) with 7 milk teeth *in situ*, aged below 5 years.
Loose teeth — 25 (adult–19, milk–7).
(Total—3 individuals: adult–1, children–2)

M. 122 (child)
Skull — fragments—1 lot.
Maxilla — 1, nearly complete with 7 milk teeth *in situ*, nasal aperture amblycraspedote, aged about 3–4 years.
Mandible — fragments—3 (appear to belong to 2 children), one aged about 3–4 years, the other slightly younger.
Loose tooth — 1 (milk).
(Child—2)

M. 123 (adult)
Skull — fragments—5, cranial bones very thick.
Mandible — fragment—1 with 5 teeth *in situ*; teeth highly worn out; left III molar shows signs of caries.
(Adult—1)

M. 124 (adult, male)
Skull — one calvarium.
Fragments — 1 lot.
Maxilla — fragments—3.
Mandible — complete with 14 teeth *in situ*.
Loose teeth — 3.
(Adult—1)

Description of skull (M. 124).—Appears to be hyperdolichocranial in form; frontal bone missing (wrongly restored previously).

Long oval in outline; all sutures excepting the left lambdoidal fused; vault medium; mastoid and supramastoidal crest well developed; forehead narrow and retreating; bulging occiput; III maxillary

molars below alveolar margin; right canine misplaced in front of II premolar as a result of which the latter is situated very much inside the maxilla.

Mandible—Complete with 14 teeth *in situ*, left III molar below alveolar margin but no trace of the same on the right; wear of teeth medium; chin prominent; muscle impressions well developed.

M. 125 (adult)

Skull — fragments—3.
Mandible — fragments—2 with 4 teeth *in situ*; heavy gonial angle turned outwards; muscle impressions well developed; teeth with medium wear.

The following measurements of the left half of the mandible were possible:

Max. breadth of ramus — 45 (?) mm.
Min. breadth of ramus — 35 mm.

(Adult—1)

M. 127

Skull — fragments—5 (adult).
Skull — fragments—8 (child).
Mandible — 1 nearly complete (adult) with 6 teeth *in situ*, left ascending ramus missing; heavy with parabolic dental arch; angle of jaw turned outwards; muscle impressions well developed; wear medium.

The following measurements were possible:

Max. breadth of ramus — 36 mm.
Min. breadth of ramus — 30 mm.
Height of the ramus — 47 mm.
Symphyseal height — 21 (?) mm.
Mandible — 1 left half and a fragment (belong to another adult) with 9 teeth *in situ*; much lighter than the above; gonial angle wider than the former; wear medium.
Loose teeth — 14 (adult).

(Total—3 individuals: adult–2, child–1)

M. 128

Skull — 1 (young adult, male ?)
Skull — fragments—1 lot (appear to belong to an adult and a child).

Maxilla — fragments—3 (adult).
Mandible — fragments—2 with 11 teeth *in situ*.
Loose teeth — 8 (adult).
(Total—2 individuals: adult–1, child–1)

Description of skull (M. 128).—Young adult male (?), facial and left parietal region missing.

Long oval in shape, all sutures open excepting the sagittal in which endocranial fusion appears to have begun; vault medium; mastoids, supramastoidal crest and temporal crest medium in development; forehead slightly retreating, low and medium in breadth; rounded occiput; muscle impressions weak on the occipital region; glenoid fossa shallow.

Mandible—Represented by two fragments, medium in development; wear of teeth medium; right III molar not yet erupted but the left one seen below the alveolar margin.

M. 130

Skull — fragments—1 lot (adult).
Skull — fragments—1 lot (child).
Maxilla — fragments—1 (child) with 2 milk teeth *in situ*, aged below 2 years.
Mandible — fragments—9 (child) with milk teeth *in situ*, aged below 2 years.
Loose teeth — 8 (milk).
Animal tooth — 1.
(Total—2 individuals: adult–1, child–1)

M. 132 (adult)

Skull — fragments—1 lot, cranial bones heavy and thick.
Maxilla — fragment—1 with 3 teeth *in situ*, wear medium.
Mandible — fragments—5 (appear to belong to two adults) with 6 teeth *in situ*.
Loose teeth — 4 (adult).
(Adults—2)

M. 133 (adult)

Skull — fragments—1 lot, cranial bones very thick.
Loose teeth — 7.
(Adult—1)

M. 134 (adult)

Skull	—	fragments—2, left parietal could fairly be restored; cranial bones thick and heavy; sagittal suture present.
Maxilla	—	1, right half with 8 teeth *in situ*, wear medium.
Mandible	—	1, complete with 14 teeth *in situ*; right II premolar missing; right medial incisor broken; dental arch parabolic in outline; muscle impressions well developed; wear medium.

The following measurements of the mandible were possible:

Min. breadth of ramus	—	31 mm.
Bigonial breadth	—	83 mm.
Mandibular length	—	69 mm.
Symphyseal height	—	32 mm.
Loose tooth	—	1

(Adult—1)

M. 135 (adult)

Skull	—	Calvarium with many parts missing.
Skull	—	fragments—1 lot.
Mandible	—	1 almost complete, belonging to an old person.
Mandible	—	1 right fragment with 2 molars *in situ*.
Teeth	—	3 (adult).

(Adult—2)

Description of skull (M. 135).—Calvarium with very thick bones; long oval in shape; metopic suture persisting, other sutures present; vault medium; supramastoidal crest prominent; temporal crest medium; rounded occiput; muscle impressions mediumly developed; forehead retreating.

M. 139

Skull	—	fragments—1 lot (adult).
Skull	—	fragments—1 lot (appear to belong to two children).
Maxilla	—	fragments—2 (child) with milk teeth *in situ*; both of left side (appear to belong to two children below $1\frac{1}{2}$ years).
Mandible	—	fragments—4 (child) with milk teeth *in situ*; (appear to belong to three children,

two below 1½ years and one about 3–4 years).
Long bones — fragments—4 (child).
Loose teeth — 5 (adult–1, milk–4).
(Total—4 individuals: adult–1, child–3)

M. 140 (adult male)
Skull — one adult male.
Fragments — 1 lot.
Maxilla — fragments 2.
Mandible — 1 complete with all teeth *in situ*.
(Adult—1)

Description of skull (M. 140).—Adult male, broken calvarium with parts of frontal, right parietal and occipital missing, tapeinocranial (77·94).

Broad oval; broadest at the parietal tuberosities; sagittal suture fused; coronal suture broken; vault medium; pre-auricular region greater than post-auricular; mastoids and supramastoidal crest mediumly developed; occiput nearly flattened; muscular impressions weak; maxilla with III molars below alveolar margins; left lateral incisor shovel-shaped with a prominent cingulum.

Mandible—Complete with all teeth *in situ*; III molars below alveolar margin; incisors and canines show crowding; wear slight.

The following measurements were possible:

Max. cranial breadth — 136 mm.
Auriculo-bregmatic height — 106 mm.
Bigonial breadth — 94 mm.
Max. breadth of ramus — 36 mm.
Min. breadth of ramus — 31 mm.
Height of ramus — 48 mm.
Mandibular length — 56 mm.
Mandibular angle — 120°

M. 145 (adult).
Skull — posterior half of an adult skull and a maxilla with 15 teeth *in situ*.
Skull — fragments—1 lot including a maxilla with teeth *in situ* (appear to belong to second adult, cranial bones much thicker than the one stated above).
Mandible — 1, complete with 13 teeth *in situ* (Min. breadth of ramus—33 mm.).

Mandible — 1 left ascending ramus.
Loose teeth — 3.
(Adult—2)

M. 146

Skull — fragments—1 lot (appear to belong to two children).
Skull — fragment—1 (adult).
Maxilla — fragments—4 with milk teeth *in situ*, aged below 2 years.
Mandible — 1 complete (child) with I and II milk molars (right and left) *in situ*, aged about 3–4 years.
Mandible — fragments—2 with 2 milk teeth *in situ*, aged below $1\frac{1}{2}$ years.
Loose teeth — 8 (milk).
(Total—3 individuals: adult–1, child–2)

M. 147 (child)

Skull — fragments—1 lot (appear to belong to two children).
Mandible — fragment—1.
Loose teeth — 5 (milk).
(Child—2)

M. 148 (adult)

Skull — fragments of 2 individuals as seen in the temporal fragments.
Mandible — fragments—2.
Loose teeth — 5.

M. 148 A (adult)

Skull — fragments of the posterior region of adult skull (restored).
(Adult—3)

Description of skull (M. 148 A).—Male (?); appears almost similar in outline to that of M. 177 A, excepting that the cranial bones are thicker than the former; the right mastoid shows a marked supramastoidal crest and a pointed mastoid; muscular impressions on the occiput more marked than M. 177 A.

M. 149

Skull — fragments—1 lot (child).
Skull — fragments—1 lot (adult).
Ribs — fragments (adult).

Long bone — fragments (adult).
Loose teeth — 2 (adult).

M. 149 A

Skull — fragments—1 lot (adult) skull.
Mandible — right fragment, of which the following measurements were possible:
Min. breadth of ramus — 41 mm.
Symphyseal height — 35 (?) mm.

M. 149 B

Mandible — Left fragment (adult).
(Total—4 individuals: adult–3, child–1)

M. 155 (adult)

Skull — fragments—1 lot.
Loose teeth — 9.

M. 155 A (adult)

Skull — fragments—only skull cap could be restored; cranial bone thick, light and spongy.

M. 155 B (adult)

Skull — parietal and frontal fragments—cranial bones thick and light.

M. 155–1 (child)

Skull — fragments—1 lot (child).
(Total—4 individuals: adult–3, child–1)

M. 156 (adult)

Skull — fragments—1 lot.
Mandible — fragments—1.
Loose teeth — 4.
(Adult—1)

M. 158 (adult)

Skull — fragments—1 lot.
Mandible broken, appear to belong to an old person.
The following measurements were possible.
Max. breadth of ramus — 44 mm.
Min. breadth of ramus — 32 mm.
Mandible — 1 fragment (belongs to another individual).
Loose teeth — 13.

M. 158 A (adult)

Skull — fragmentary calvarium, cranial bones

			very thick; all sutures appear to have fused.
M. 158 B	(adult)		
	Skull	—	fragments, very thick bones. (Adult—4)
M. 159	(adult)		
	Skull	—	fragments—1 lot.
	Tooth	—	1.
M. 160	(adult)		
	Skull	—	fragments—1 lot, cranial bones thick, light and spongy.
	Maxilla	—	fragments—3 with 4 teeth *in situ*; left medial and lateral incisors shovel-shaped; left lateral incisor shows labial ridges; teeth highly worn out.
	Loose teeth	—	6, teeth highly worn out. (Adult—1)
M. 161	(adult, male)		
	Skull	—	1, with some fragments of the two parietal missing, isolated palate with 9 teeth *in situ*.
	Mandible	—	almost complete with 6 teeth *in situ*.
	Loose teeth	—	5. (Adult—1)

Description of skull (M. 161)—Adult male, brachycranial (84·39); long oval; broadest at the pareital tuberosities; forehead straight, medium in breadth; supraorbital ridges well developed; bulging rounded occiput, pentagonal in outline; lambdoidal and coronal sutures fused endocranially; mastoids and supramastoidal crest very prominent; cranial bones very thick; plate shallow and broad; teeth highly worn out.

Mandible can be associated with the palate but may not belong to the skull (Measurements in Table 16).

M. 165	(adult)		
	Skull	—	calvarium with many parts missing.
	Skull	—	fragments—1 lot (appear to belong to second adult).
	Mandible	—	fragments 3.
	Loose teeth	—	17.

Scapula — fragments—1.
(Adult—2)

M. 161-7

Skull — fragments—1 lot (adult) cranial bones light and thick.

M. 167-2

Skull — fragments—1 lot (child).
Maxilla — fragments—2 (child) aged about 1 year.
Mandible — fragment—1 (child).
Loose teeth — 4 (adult–3, milk–1.)
(Total—2 individuals: adult–1, child–1)

M. 168

Skull — 1 (child).
Skull — fragments—1 lot.
Mandible — 1 with 8 teeth *in situ*; aged about 3 years.
Mandible — fragment—1 (belong to a second child).
Loose teeth — 5 (milk teeth).
(Child—2)

Description of skull (M. 168)—Damaged skull, only the right parietal half without the frontal portion is present; almost complete mandible; canines still below the level of other teeth.

A fragment of skull in the packet showed two numbers—M. 158 and M. 168.

M. 169

Skull — fragments (child) aged about 3 years including 3 fragments of maxilla.
Mandible — 1 with two milk, molars *in situ*.
(Child—1)

M. 170

Skull — posterior fragment of a calvarium and a maxilla (child).
Skull — fragments—1 lot (adult).
Mandible — 1 with 9 teeth *in situ* (child).
Mandible — 1 right half with 6 teeth *in situ* (adult).
Loose teeth — 2 (adult).

The following measurements on child's mandible were possible:

Min. breadth of ramus — 31 mm.

Symphyseal height — 25 mm.
Mandibular length — 60 mm.
(Total—2 individuals: adult–1, child–1)

M. 171

Skull — fragments—1 lot (adult).
Skull — fragments—1 lot (child).
Maxilla — 1, complete (adult) with 16 teeth *in situ*; broad U-shaped palate; wear of teeth medium.

The following measurements were possible:

Maxillo-alveolar breadth — 60 mm.
Palatal breadth — 41 mm.
Maxilla — 1 nearly complete (child) with 6 teeth *in situ*, aged about 7 years.
Mandible — 1 complete (adult) with 12 teeth *in situ*; chin prominent; muscle impressions well developed.

The following measurements of the mandible were possible:

Max. breadth of ramus — 38 (?) mm.
Min. breadth of ramus — 29 (?) mm.
Symphyseal height — 29 mm.
Mandibular length — 68 mm.
Bigonial breadth — 97 (?) mm.

The mandible could not be articulated with the above maxilla.

Mandible — fragments—2 (child) with 8 teeth *in situ*, aged about 7 years.
Loose teeth — 2 (adult).
(Total—3 individuals: adult–2, child-1)

M. 172

Skull — broken in many parts with 8 teeth (adult).
Skull — fragments—2 (child).
Loose teeth — 4 (milk).
Fragment of an animal maxilla with 2 teeth *in situ*.
(Total—2 individuals: adult–1, child–1)

Description of skull (M. 172).—Adult female (?) calvarium; partly restored with the frontal and the right parietal bones broken in many parts, long oval in shape; broadest at the rounded parietal tuberosities; medium vault; pre-auricular region greater than post-auricular; rounded occiput; muscular impressions weak; all sutures open.

M. 173

Skull	—	fragments—1 lot (appear to belong to 3 children), all below 2 years of age.
Skull	—	fragments—1 lot (adult).
Maxilla	—	fragments (adult).
Mandible	—	2 (adult)—one belongs to an old person as seen in disintegration in the alveolar margin and the wide gonial angle.
Mandible	—	fragments (child).
Loose teeth	—	27 (adult–19, milk–8)—one adult molar tooth is characterised by five roots, two of which are fused.

M. 173-1

Skull	—	one calvarium partly restored (adult male).

M. 173-2

Skull	—	fragment—1 (adult).

M. 173–3

Skull	—	fragments—1 lot (adult)—cranial bone very thick.
Mandible	—	fragment—1 (adult).

(Total—7 individuals: adult–4, child–3)

Description of skull (M. 173–1).—Adult, male, right parietal missing; brachycranial (82·42) hypsicranial (69·09 ?), metriocranial (83·82 ?).

Broad oval; sagittal, coronal and lambdoidal sutures present ectocranially but fused endocranially; vault high; temporal crest feeble, temporal line well developed; mastoid medium in development, supramastoidal crest medium; pre-auricular region greater than post-auricular; occiput pentagonal in outline; superior nuchal line medium as also the muscle impressions; broad, retreating forehead with medium in height (Measurements in Table 16).

M. 175

Skull	—	1 distorted (adult male).
Skull	—	fragments (adult).
Skull	—	fragments (child).
Fragments	—	12 (adult).
Maxilla	—	1 (adult).
Mandible	—	1 with all teeth except left medial incisor.

(Total—3 individuals: adult–2, child–1)

Description of skull (M. 175).—Adult, male mesocranial (77·38), hypsicranial (64·29), metriocranial (83·08) parts of right parietal missing; long oval; metopic suture persisting externally but fused internally; posterior region of sagittal suture fused both externally and internally, lambdoidal suture also partially fused; vault medium; mastoid medium in development; supramastoidal crest medium; occiput pentagonal in outline; rounded occiput, muscular impressions medium; vertical forehead, narrow and high; supraorbital ridges imperceptible; glenoid fossa medium in depth and breadth; palate U-shaped; III molars still below alveolar margin; right I premolar peculiar in being peg-shaped without any cusp; 2 shovel-shaped incisors.

Mandible—Complete with all teeth excepting the left medial incisor; no trace of III molar; wear medium (Measurements in Table 16).

M. 177

Fragments	—	1 lot (child), aged about 2 years.
Maxilla	—	fragments—3 (adult) with teeth *in situ*.
Mandible	—	fragments—3 (child).
Mandible	—	fragments—3 (adult) with teeth *in situ*.
Teeth	—	6 (adult).

M. 177 A

Skull	—	1 damaged calvarium (adult) and a fragment.

M. 177 B

Skull	—	fragments—2 (adult).

(Total—3 individuals: adult–2, child–1)

Description of skull (M. 177 A).—Broad oval in outline with rounded occiput; all sutures open; forehead slightly retreating.

M. 178 (adult)

Maxilla	—	fragments—2 (appear to belong to two adults) with 5 teeth *in situ*; teeth highly worn out.
Loose teeth	—	6.

(Adult—2)

M. D. (adult)

Maxilla	—	1 with 15 teeth *in situ*; right medial incisor missing; palate deep and broad; dental arch parabolic in outline; teeth with medium wear.

The following measurements were possible:

Maxillo-alveolar breadth	—	63 mm.
Palatal breadth	—	43 mm.
Mandible	—	1, nearly complete; prominent muscle impression; wide gonial angle; teeth with medium wear.

The following measurements were possible:

Min. breadth of ramus	—	30 mm.
Symphyseal height	—	30 (?) mm.
Bigonial breadth	—	98 (?) mm.
Loose teeth	—	3.

The mandible could not be articulated with the above maxilla.

(Adult—2 ?)

Maski

Adult male, dolichocranial (72·73) distorted with middle of the facial region broken.

Long oval in outline; sutures not discernible; vault medium; mastoid process and supramastoidal crest well developed; forehead medium in breadth, low and retreating; occiput slightly rounded; superior nuchal line and muscular impressions prominent; glenoid fossa shallow, alveolar margin parabolic; with 6 molars *in situ*; palate very deep; teeth with medium wear.

The following measurements were possible:

Max. cranial length	—	187 mm.
Max. cranial breadth	—	136 mm.
Length-breadth index	—	72·73

6. RACIAL AFFINITIES (ROMAN NUMERAL SERIES)

In the above series only five crania (Nos. M. X, M. XVII, M. XIXA, M. XXIX and M. XXXVIII) could be utilized for a few measurements already mentioned in the text. No. M. X belongs to a child about 2 years old. The metopic suture of the skull has not completely fused. Its cranial length and breadth was found to be 141 mm. and 117 mm. respectively, thereby showing a brachycranial index of 82·98. No. M. XVII belongs to a male. Its head length could not be measured but the breadth was found to be 139 mm. No. M. XIX A also belonged to a child. It showed a hyperbrachycranial index of 98·67, with the cranial length and breadth measuring

TABLE 16

MEASUREMENTS OF CRANIA FROM ARABIC NUMERAL SERIES

No. of the Skull	*M.* 1	*M.* 10	*M.* 16*A*	*M.* 16*B*	*M.* 18	*M.* 21*A*	*M.* 26	*M.* 29*B*	*M.* 31	*M.* 44	*M.* 69	*M.* 73*A*	*M.* 161	*M.* 173-1	*M.* 175
Sex	♂	♂	♂	♂	♂	♂	♀	♂	♀	♀?	♂	♂	♂	♂	♂
1. Max. cranial length	—	194	172	163	181	172	166	176	—	185?	177	190	173	165?	168?
2. Max. cranial breadth	137	142	138	—	135?	147	131	137	135	130?	133	160?	146	136?	130
3. Nasion inion length	—	182	158	—	174	—	—	162	—	—	165	186	165	—	160
4. Auriculo-bregmatic height	109	121	122	—	125	128	111	124	110	119	116	136	—	114	108
5. Least frontal breadth	96	98	90?	99	98	92	89	93	105	89	96	98	99	92?	—
6. Greatest frontal breadth	—	119	—	—	—	120	108	107	119?	—	117	135?	—	—	—
7. Bimastoid breadth	105	—	116?	—	—	—	100?	—	104?	—	—	105?	115	99	92
8. Nasal breadth	—	—	—	—	—	—	—	25	—	—	—	—	—	—	—
9. Maxillo-alveolar breadth	64	58	—	—	—	—	—	63	57	63	61	—	—	—	57·5
10. Palatal length	—	—	—	—	—	—	—	—	—	45	—	—	—	—	—
11. Palatal breadth	—	37	—	—	—	—	—	—	39	41	42	—	—	—	37
12. Sagittal cranial arc	—	390	—	—	—	—	—	—	—	—	—	—	390?	—	—
13. Transverse cranial arc	—	370	—	—	—	—	294	—	302	302	299	—	—	—	300
14. Horizontal circumference	—	540	—	—	511	508?	470	496	—	507	504	—	530?	—	—
15. Biauricular breadth	—	125	126	—	—	—	113	—	120	113	117	—	128	117	108
16. Greatest occipital breadth	98	120?	108	—	—	—	—	107?	110	103	—	114	115	103	—
17. Bigonial breadth	—	90	—	—	—	—	81	105	95	97	84	—	90	—	94
18. Frontal arc	—	118?	125	—	136	—	—	125	—	120	124	133	—	—	—

(Contd.)

TABLE 16 (*Contd.*)

MEASUREMENTS OF CRANIA FROM ARABIC NUMERAL SERIES

No. of the Skull	*M.* 1	*M.* 10	*M.* 16*A*	*M.* 16*B*	*M.* 18	*M.* 21*A*	*M.* 26	*M.* 29*B*	*M.* 31	*M.* 44	*M.* 69	*M.* 73*A*	*M.* 161	*M.* 173-1	*M.* 175
Sex	♂	♂	♂	♂	♂	♂	♀	♂	♀	♀?	♂	♂	♂	♂	♂
19. Parietal arc	—	141?	111	122	127	120	118	135	106	—	126	130	—	115	—
20. Occipital arc	—	131?	—	—	—	110	107	—	109	—	—	—	117	122	—
21. Frontal chord	—	108?	115	—	115	—	—	112	—	108	108	119	—	—	—
22. Parietal chord	—	128?	99	106	113	105	105	113	108	—	112	113	—	105	—
23. Occipital chord	—	98?	—	—	—	91	93	—	93	—	—	—	102	102	—
24. Nasion lambda line	—	—	165	—	—	—	—	170	—	—	—	—	—	—	159
25. Glabella nasion line	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9
26. Height of the ramus	63	50	—	—	—	—	48?	—	52	—	54	—	70	—	—
27. Max. breadth of ramus	38	41	—	—	—	—	36	—	33	44?	43	—	42	—	42·5
28. Min. breadth of ramus	28	33	—	—	41	—	32	24	27	34	35	—	31	—	35
29. Bicondylar breadth	—	—	—	—	—	—	100?	—	122	—	109	—	—	—	—
30. Symphyseal height	—	32	—	—	—	—	24	33	26	27	30?	—	—	—	26
31. Mandibular length	—	59	—	—	—	—	63	80	60	63	69	—	66	—	67
32. Mandibular angle	—	126°	—	—	—	—	124°	—	123°	125°	131°	—	119°	—	—
33. Length breadth index	—	73·20	80·23	—	74·59	85·47	78·92	77·84	—	70.27?	75·14	84·21	84·39	82·42	77·38
34. Length height index	—	62·37	70·93	—	69·09	74·42	66·87	70·45	—	64·32?	65·54	71·58	—	69·09	64·29
35. Breadth height index	79·56	85·21	88·41	—	92·59	87·07	84·73	90·51	81·48	91·54?	87·22	85·00	—	83·82	83·08
36. Palatal index	—	—	—	—	—	—	—	—	—	91·11	—	—	—	—	—

150 mm. and 148 mm. respectively. The cranial breadth appears to be too high for a child, but there is a very close morphological similarity with the infant skull mentioned above. Both have a plano-occipital occiput, and the slight bulge at the lower region of the occipital bone in the skull No. M. X may be due to the super-incumbent pressure of the earth on a tender bone.

Skull No M. XXIX belongs to a male (?). Its cranial length measured 193 mm. but the breadth could not be measured. There is a general morphological similarity between this skull and No. M. XVII.

Skull No. XXXVIII belongs to an adult female. The maximum length and breadth of the skull are 172 mm. and 135 mm. respectively thus giving a high mesocranial index of 78·49.

The above three cranial indices therefore vary between the maximum of 98·67 and the minimum of 78·49 with a mean index of 86·71. The cranial length varies between the maximum of 172 mm. and the minimum of 141 mm. while the cranial breadth between that of 148 mm. and 117 mm. The above range of variation is not strictly comparable with the Brahmagiri range of variation since the present series varies in sex and age from that of Brahmagiri. The meso-brachycranial indices and the morphological similarity between the Brahmagiri crania and those described above probably lead us to the opinion that both belonged to the same ethnic strain.

M. XVII and M. XXIX probably belong to an ethnic strain different from the above.

Dentition.—5 shovel-shaped incisors were found in association with skulls No. M. XI, M. XVII and M. XIX of which 3 belonged to the second number.

7. RACIAL AFFINITIES (ARABIC NUMERAL SERIES)

It will be apparent from Table 16 that 13 crania could be utilized for the measurements of length and breadth and 16 for that of the auriculo-bregmatic height. The basion-bregma height was not available for any skull. All the above three measurements were available for 11 crania only.

Length-breadth index.—The 13 crania known for this index varied between the minimum of 70·27 for the female skull No. M. 44 and the maximum of 85·47 for the male skull No. M. 21 A. The mean

index of the whole series was found to be 78·53 (male—79·49; female —74·60). The cranial length varied between the minimum of 164 mm. for skull No. M. 30 (young adult ?) and the maximum of 194 mm. for the male skull No. M 10. The minimum cranial breadth of 126 mm. was also found for skull No. M. 30, while the male skull No. 73 A showed the maximum breadth of 160 mm. Skull No. M. 30 thus appears to be the smallest and that of No. M. 73 A the largest. The cranial length of the latter was 190 mm.

The different cranial types will be apparent from Table 17.

TABLE 17

PERCENTAGE DISTRIBUTION OF CRANIAL TYPES

	No.	%
Dolichocranial	3	23·08
Mesocranial	5	38·46
Brachycranial	4	30·77
Hyperbrachycranial	1	7·69
	13	100·00

Mesobrachycranial forms appear to be predominant in the sample.

Length-height index.—This index could be calculated in the case of 11 crania. The minimum index of 62·37 was found in the case of the male skull No. 10, while the maximum of 74·42 for skull No. 21 A of the same sex. 90·91 % of the crania were hypsicranial and the rest, represented by skull No. 10 only, was orthocranial (9·09 %). This latter skull showed an index of 62·37, which is on the border of hypsicranially. The sample thus shows the homogeneous nature of this index. The mean index was 68·08 (male–68·64; female–65·60). The auriculo-bregmatic height varied between the minimum of 106 mm. for the male skull No. 140 and the maximum of 136 mm. for the male skull No. 73 A. The mean height was found to be 117·53 mm. (male–118·58 mm.; female–113·33 mm.).

Breadth-height index.—This index was known for 16 crania. The minimum index of 77·94 was found in the case of skull (male ?) No. M. 140 while the maximum of 92·59 for the male skull No. M. 18. The mean index was 85·84 (male–85·82; female–85·92). The distribution of the different forms of this index is given in the table below :

TABLE 18

PERCENTAGE DISTRIBUTION OF BREADTH-HEIGHT INDEX

	No.	%
Tapeinocranial	2	12·50
Metriocranial	7	43·75
Acrocranial	7	43·75
	16	100·00

Although the percentages of metriocranial and acrocranial forms are equal it will be seen from the individual percentages given in Table 16 that 5 out of 7 crania falling within the metriocranial range (80·0–85·9) are on the border of acrocranially. The latter may therefore be said to be the predominant form of the breadth-height index of the present sample.

The heterogeneous nature of the sample is however apparent in the different indices of the skull. This is probably due to the presence of different ethnic types entering into the composition of the present sample.

The median sagittal craniograms of four Maski crania, Nos. M. 10, M. 16 A, M. 18 and M. 29 B, which could be utilized for this purpose may show that skull No. M. 10 stands distinctively out of the four crania by virtue of its maximum length, highest vault, nearly vertical forehead and stout supraorbital ridge. It shows the dolichocranial index of 73·20, an orthocranial index of 62·37 and a metriocranial one of 85·21. Its maximum length of 194 mm. is the highest of the sample, the maximum breadth of 142 mm. is the highest. In conformity with the above measurements it also shows the highest horizontal circumference of 540 mm. These high values of the different measurements appear to be similar to those found at Al'Ubaid (Keith, 1927). Skull No. M. 10 is closely similar in dimensions to the Al'Ubaid skull No. XII.

Skull No. M. 44, a female, also appears to belong to the ethnic strain mentioned above. With a cranial index of 70·27 it is on the border of the hyperdolichocranial range. Its length-auriculobregmatic index is 64·32 and the breadth-auriculo-bregmatic one 91·54. There is also a general similarity with the female skulls from Al'Ubaid.

It will be seen from the identification lists that many cranial fragments have been noted as thick and heavy. This may also be a character of the Al'Ubaid type of crania, since Keith (1927) has

described cranial thickness up to 8 mm., in 5 out of 15 skulls about the parietal tuberosities. This may also occur due to senile changes—evidences of which are abundant in the present collection in the closure of the ecto- and endocranial sutures.

Skull No. M. 18 stands next to No. M. 10, mentioned above. It is remarkable in having the lowest vault of the four Maski crania in the forward projection of the forehead and in having a prominent inion. It also shows a dolichocranial index of 74·59, a hypsicranial index of 60·06 and an acrocranial one of 92·59, the highest of the present sample. The cranial dimensions are 181 mm. for length, 135 mm. for breadth and 125 mm. for height. The horizontal circumference is 511 mm. These medium values appear to show its affinity with the Australoids, the autochthones of India. Skull No. M. 30, probably a female, appears to belong to this ethnic type and its very small nature has already been mentioned.

The other two crania, Nos. M. 16 A and M. 29 B appear to form another group although the length-breadth index of the former is 80·23 and that of the latter 77·84. The close similarity between the two crania will be evident from the measurements given in Table 16. This meso-brachycranial type shows a close relationship with the Brahmagiri crania (Sarkar, 1961). The cranial index of the Maski crania varied between 75·14 and 84·39 while those from Brahmagiri between 74·32 and 83·52. The frequency of brachycranials (cf. Table 17) was probably higher at Maski than those at Brahmagiri.

Skull No. M. 73 A, a male, belonging to the above ethnic type shows an extremely high cranial breadth of 160 mm. and the highest auriculo-bregmatic height of 136 mm. As previously mentioned, it is the largest voluminous skull of the collection. At Brahmagiri, an approach towards such high cranial breadth could be seen in two crania Br. Meg. I (B) and Br. Meg. I (F) with cranial breadths of 152 mm. and 151 mm. respectively. The corresponding cranial lengths are 182 mm. and 187 mm. The latter thus approaches the cranial length of 190 mm. found in the case of skull No. M. 73 A. This all the more confirms the affinity of the present sample with that of Brahmagiri.

Other Peculiarities.—Trepanation in one of the skulls,—skull No. M. 30, shows two holes on either side of the sagittal suture on the vertex. The left hole, 22 mm. in diameter, appears to have been trepaned as judged from the short scratches with angular forms in between, whereas the right one does not show such marks. The right

holes measures 15 mm. in diameter. As already noted before, the skull has undergone a considerable amount of disintegration in the soil and may be an old specimen.

This is probably the first case of a circular trepanation found in protohistoric association. The present writer had the occasion of noting a rectangular trepanned hole in a child crania from Lothal also.

Dentition.—The teeth of the present collection shows some interesting peculiarities.

(a) Shovel-shaped incisors : 35 shovel-shaped incisors were found. A frequency of this type of teeth may be attempted if the total number of individuals is counted as 254. There should be thus a total number of $254 \times 4 = 1016$ upper incisors which gives a frequency of 3·44%. This is only a suggestion since we do not know the number of missing teeth; only one skull No. M. 175, whose head form is known, could be associated with this type of teeth. He was a mesocranial (77·38) male, with the metopic suture partly persisting and also possessed a peg-shaped incisor on the maxilla.

(b) Peg-shaped incisors : It appears from the occurrence of this form of teeth that unlike shovel-shaped incisors only occurring on the maxilla, they have been found on both the jaws. Such teeth do not show any sharp cutting edge characteristic of incisors but show a blunt circular surface. Two instances were found on the mandible (Nos. M. 43 and No. M. 52). The other instance on the maxilla of M. 175 is mentioned above.

(c) Irregular position of canine : Skull No. M. 9 showed the upper left canine upside down as a result of which the tooth is seen by the nasal margin with the lingual surface bare. Skull No. M. 124 also had the right canine lodged in front of the II premolar.

(d) Dental roots : Premolars usually have a single root and those showing more than one root have a very low frequency. According to Koenigswald (1954) the anthropoid type of three-rooted upper premolar occurs in man in 3% in the case of I and in 0·3% in the case of the second. Two-rooted II upper premolar appears in 3·5% while a lower premolar with two roots is extremely rare. In the present sample two-rooted premolars have been found in association with skull Nos. M. 12 and M. 38. The last number also shows three shovel-shaped incisors.

Skull No. M. 173 showed a molar with five roots.

8. SUMMARY

Combining the evidences of the two series of crania, Roman and Arabic, we find the following ethnic types in the Maski Museum cranial collection.

1. The meso-brachycranial skulls predominate in both the series, which appear to be ethnically similar to the same type of skulls from Brahmagiri. Brachycranial types appear to occur more both in form and frequency at Maski than those at Brahmagiri.

2. A second type, represented by very long head, thick and heavy bones, larger cranial capacity, which however could not be measured in any skull, and robusticity has been found in both the series. In the Roman numeral series the two crania Nos. M. XVII and M. XXIX, the latter showing a cranial length of 193 mm. (cf. 194 mm. in skull No. M. 10) and also the skull numbered "Maski" (p. 115) appear to belong to this type. It is meagrely represented due to the fragmentary nature of the material. This type appears to be similar to the Al'Ubaid type. It has also been found among the Lothal skeletal remains.

3. The third type is characterized by smaller cranial dimensions, lesser cranial capacity and probably somewhat early closure of cranial sutures. It seems to be similar to the autochthones Australoids of this country.

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CHAPTER FIVE

Brahmagiri

1. INTRODUCTION

BRAHMAGIRI IS LOCATED in the Molakalmuru Taluk in the District Chitaldrug in northern Mysore. Siddapur, a village well known for three Asokan rock-edicts, is in the neighbourhood of Brahmagiri. Wheeler (1947-48) was able to open only ten megaliths out of about 213 such structures distributed in three groups in a roughly triangular area. Two megalithic areas, one to the north, and the other to the north-east of one of the Asokan rock-edicts, have not yet been explored. As such the total number of megalithic structure must be much more than the figure given above. The above figure was arrived at from an approximate count of the megalithic structures figured in Plates LXXIV-LXXVI (Wheeler, 1947-48).

The excavations at Brahmagiri have led to the establishments of a chronological sequence of three successive cultures. According to Wheeler they are as follows :

I. Brahmagiri Stone axe culture : Early first millenium B.C. (?) to the beginning of the second century B.C., continuing as a dwindling subculture through most of the succeeding Megalith phase.

II. Megalithic culture : After *c.* 200 B.C. to the middle of the first century A.D., overlapping the Andhra culture.

III. Andhra culture : About the middle of the first century A.D. to the third century.

2. HUMAN SKELETONS FROM MEGALITHS

The skeletal materials were almost in the same condition in which they had been transported from the field, excepting four skulls (A, B, C and F) of Br. Meg. 1. Crania A, B and C had been restored at the Anthropological Survey of India, Calcutta, when foreign materials were freely used to restore the missing parts. Cranium F was received in fragments (67 large and 36 very small), all cleaned, treated and gathered together in a cardboard box. They were said

to be in the preparatory stage for restoration. A fragment of the left zygoma of skull A was received separately; it has been restored to the skull after removal of the foreign substance. Due to lack of care for twelve years, the bones have been further brittle in a large number of cases, particularly those removed with a paraffin coating. Plasticine dried up to such an extent that it was difficult to remove, and so was the mixture of paraffin and plasticine. Obviously, skeletal material removed from the field should be given immediate attention in the laboratory. In the present case, some of the long bones like femur, tibia, etc. could have been of better anthropometric purpose if they were attended to earlier. Some of the long bones could be restored to their full size, but there have been too many joinings to interfere with the original. It appears also that no measurement of any bone was taken in the field.

A complete list of the skeletal remains from megaliths, sent to us, is given below.

List No. 1

Brahmagiri Skeletal Remains

Megaliths

Br. Meg. I

Skull — 6, numbered A, B, C, D, E and F (all adults excepting D); A, B and C restored at the Indian Museum, Anthropological Survey of India; F received in fragments cleaned and shellaced; D and E received in the condition as removed from the field.

Fragment of a left maxilla showing 2 teeth, II premolar and I molar; highly worn out (adult).

Mandible — (a) Left half of an adult—III molar existing, others broken.

(b) Mandible of a child—both condyles missing, permanent I molar erupted, right II deciduous molar present but much worn out, II permanent molars nearly appearing, about 12 (?) years old.

Tooth	—	(a) root of a premolar (?), found attached to skull C. (b) crown of an upper premolar (?)—highly worn out, roots partly missing, appears to show some similarity in cusp pattern with that of skull B. (c) unerupted right III permanent molar without root, extracted from the maxilla of skull D.
Scapula	—	fragments—5 (adult).
Vertebra	—	fragments—2 (adult).
Rib	—	fragments—8 (adult).
Humerus	—	(a) left, head missing and shaft flattened —appears to belong to a very robust individual (adult). (b) fragment—1, from middle of the shaft (adult). (c) lower end of left—(adult) individual not so robust as that of (a).
Ulna	—	(a) upper end of right side (adult). (b) shaft fragment of left—individual not so robust as that of (a), (adult). (c) shaft fragments—2 (adult). (d) upper end—1 (child).
Radius	—	shaft fragment—1 (adult).
Carpal	—	3 (adult).
Metacarpal	—	3 (adult).
Phalange	—	2 (adult).
Pelvis	—	fragment—1 (adult).
Femur	—	(a) left, nearly complete, parts of greater trochanter missing, lower end somewhat compressed (adult). (b) right, head and greater trochanter missing, lower end along with the condyles pressed flat (adult). (a) and (b) may be of the same person. (c) right, lower end very much distorted (adult). (d) left distal end (adult). (c) and (d) may belong to one individual.

(e) left, upper end—appears to belong to a person more slender than the above (adult).
(f) right, lower end (adult).
(g) left, lower end (adult).
(h) left, lower end (adult).
(i) left, fragment of head (adult).
(j) distal epiphysis (child).

Patella — (a) right, appears to belong to an individual robuster than (b) (adult).
(b) right (adult).

Tibia — (a) right (adult).
(b) right (adult).
(c) left (adult).
(d) left (adult).
(e) lower end, belonging to a slender-built (adult).
(f) fragment of lower end (adult).
(g) middle of the shaft (child).

(b) and (d) appear to be of the same robustness and stouter than the others.

Tarsal — 4 (adult).
Phalange — 2 (adult).

Br. Meg IV

Vertebra — fragments—2 (adult).
Rib — fragments—2 (adult).
Humerus — shaft fragment—1 (adult).
Radius — shaft fragment—1 (adult).
Femur — shaft fragment—1 (adult).
Tibia — shaft fragment—1 (adult).
Fibula — shaft fragment—1 (adult).
Unidentified fragment — 1 lot.

Br. Meg IV (a) & (b)

Scapula — fragment—1 (adult).
Humerus — fragment—1 (adult).
Radius — shaft fragments—3 (adult), two appear to belong to the same individual, while the third fragment belongs to an individual robuster than the former.

Femur	—	shaft fragments—2 (adult), belonging to two individuals, one robuster than the other.
Tibia	—	shaft fragment—1, appears to belong to a slender-built person.

Br. Meg. IV (b)

Skull	—	fragments (adult)—1 lot.
Tooth	—	I upper premolar, roots partly broken.

Br. Meg. IV (c)

Skull	—	distorted skull of a young adult; condition as found in the field.

Br. Meg. V

Skull	—	represented by a small fragment (adult).
Mandible	—	symphyseal fragment with teeth—1 (child ?).
Humerus	—	shaft fragments—3 (adult), of which two may be ascribed to one individual while the third fragment appears to be that of a less robust person.
Ulna	—	fragment—1 (adult).
Pelvis	—	fragment—1 (adult).
Tibia	—	shaft fragment—1 (adult).
Fibula	—	shaft fragment—1 (adult).
Unidentified fragment	—	1 lot, with a fragment of a long bone of a child.

Br. Meg. V (a) & (b)

Skull	—	represented by small bits of child bones.
Mandible		fragment of right, III molar *in situ*, crown of others broken (adult).
Tooth	—	two fragments of molar crown—(adult).
Unidentified fragment	—	1 lot.

Br. Meg. VII (1) (Pit-Circle)

Skull	—	1, as found in the field (adult).

Br. Meg. VII (2)

Skull	—	1, as found in the field (adult).
Tooth	—	complete—7; fragments—7.
Humerus	—	shaft fragments—4 (adult).
Radius	—	shaft fragment—1 (adult).

Ulna	—	shaft fragment—1 (adult).
Unidentified fragment	—	1 lot.
Br. Meg. VIII		
Scapula	—	fragment—1 (adult).
Vertebra	—	fragments—2 (adult).
Radius	—	shaft fragments—3, of which 2 fragments can be ascribed to one individual robuster than that of the third (adult).
Ulna	—	shaft fragments—2.
Femur	—	shaft fragments—2, one appears to belong to a robuster individual than the other (adult).
Tibia	—	shaft fragments—3, two can be ascribed to a slender individual while the third fragment appears to belong to a very robust person (adult).
Unidentified fragment	—	1 lot.
Bone pieces found on pot 10.	—	small shaft fragments of long bones —16.
Bone pieces found on pot 11.	—	shaft fragments of long bones—6.
Br. Meg. VIII (a)		
Skull	—	1, as found in the field (adult).
Mandible	—	1, fragment of right side, larger in size than the (b) fragment (adult).
Tooth	—	2, upper incisors, one broken.
Br. Meg. VIII (b)		
Skull	—	1, as found in the field (adult).
Mandible	—	right and left fragments—2, (no teeth) (adult).
Br. Meg. X		
Ulna	—	fragment—1, (adult).
Br. Meg. X (a) & (b)		
Tibia	—	fragment of upper end. This fragment is stouter than that under No. X (c) (adult).

Br. Meg. X (c)

Radius	—	shaft fragments—2, of which one appears to be stouter than the other (adult).
Ulna	—	shaft fragment—1 (adult).
Tibia	—	shaft fragment—1 (adult).
Unidentified fragment	—	3 (adult).

It will be seen from the above list that no bones of Br. Meg. VI and Br. Meg. IX have been received by the present writer, although Wheeler mentions them on pages 192 and 199 of his report. This matter was duly reported to the concerned authority.

There are also a few other incongruities between Wheeler's report on the skeletal materials and those sent to us. Br. Meg. IV, according to Wheeler, yielded two broken skulls—one of which is of a dolichoid young adult, and two other skulls found at a different level; but to us the crania are represented by some fragments of adult, marked Br. Meg. IV (b), and the distorted skull of a child (?), numbered Br. Meg. IV (c). There are however evidences of three skeletons with us.

In the case of Br. Meg. V, Wheeler reports of "a collection of disarticulated human bones including two skulls". To us, the cranial material is represented by a small fragment of an adult skull and a fragment of a child's (?) mandible, numbered Br. Meg. V, and, small bits of a child's skull marked Br. Meg. V (a) & (b). There is also a fragment of an adult mandible with the same number. Two adult persons are however discernible from the fragments of the humerii. The child skull is also supported by the fragment of a long bone of a child, numbered Br. Meg.V. There are similarly no trace of the three skulls of Br. Meg. X as reported by Wheeler.

Wheeler reports about 19 skulls in all—17 from cist-circles and 2 from pit-circles whereas only 12 crania were received by us (excepting bits of child's crania of Br. Meg. V); 10 from cist-circles, and 2 from pit-circles.

Wheeler has divided megaliths into two types : (a) cist-circles, and (b) pit-circles.

The cist-circles comprise the following skeletons : Br. Meg. I, IV, V, VIII and X, while of the four pit-circles (II, III, VII and IX) discovered, only VII and IX have yielded skeletal remains. Of the latter two, only VII was received by us.

Wheeler is inclined to treat the pit-circles as macerating pits or "inverted towers of silence" to which Banerjee (1956) has raised an objection. A perusal of the skeletal parts mentioned in the above list will however show that in none of the two megalithic structures a complete quota of bones per individual has been found. For instance, in Br. Meg. I, six crania have been found which necessitate the presence of the requisite number of other bones of six skeletons. If only the long bones of the two pairs of limbs are taken into account it is seen that only 26 bones have been found in comparison to the expected number of 72, i.e., only 36·1% are represented in this megalith. In this manner the frequency of the presence of bones in the different megaliths and other burials from the Stone Axe Culture has been worked out in Table 19.

It will be apparent from the Table 19 that the Stone Axe Culture burials, excepting Br. 21, U.B. 2, are better represented by the different parts of the skeleton than the megaliths. In case of Br. 17 C 4. U.B. 2, the expected number of 100% bones have been found, while in cases of B.1.B.10 and A 4. U.B.1 from Site Br. 17, three-fourths of the bones are represented. Compared with this the megaliths are poorly represented. The highest frequency of 41·7% is seen in the case of Br. Meg. VIII while Br. Meg. X is represented by the lowest percentage of 16·7%. On an average, megaliths are represented by 27·5% of the long bones of the limbs compared with 60.8% of the same in the case of the Stone Axe Culture burials.

This paucity of bones in all the megaliths probably points out to a primary process in the disposal of the dead. The dead bodies were probably exposed to birds and beasts before some of them were collected for internment in megaliths. The structure for this primary process should be different and recognizable from the megaliths. All the Brahmagiri cist-circle megaliths contain more than one skeleton. Remains of six persons have been found from Meg. I, three from each of the Megaliths IV, V and X, and two from Meg. VIII. Each megalith appears to be a family vault. They are obvious cases of multiple burials, as pointed out by Gordon Childe (1948).

It is beyond the competency of the present writer to go into the identification of pit-circles as mascerating pits, as suggested by Wheeler, and objected by Banerjee. The paucity of the skeletal parts in the megaliths necessitates the presence of some such exposure or macerating pits. There is nothing to be wondered at in there being only nine pit-circles for about 300 megaliths. There may have been

common macerating pits for a group of families. Since the period of use of a macerating pit is temporary, we can very well compare it with a modern cremation ground, where a few pyres serve well and the same pyre is used repeatedly. This repeated use of the same pit for maceration probably explains the presence of grave furniture in the primary fillings of pits. Banerjee has pointed out that the presence of two crania and a few long bones in the pit-circle Meg. VII "runs counter to the idea of selection from the maceration pit", suggested by Wheeler, but that skulls were not selected will be apparent from Br. Meg. VI, which according to Wheeler, did not yield any skull but only 8 or 9 human bones. It appears that there could hardly be any choice or selection if once the body was exposed. The pit-circles were probably always kept open and Banerjee's apprehension of 33 gold beads not being stolen is not inexplicable. Besides the nearly universal fear of the dead, which prevents common people visiting a grave-yard, the beads might have gone under the body or deep into the earth so as not to attract the robber's eye. There is one more fact. This pit-circle (Br. Meg. IX) alone has offered the presence of gold, which to some extent indicate the wealthy position of the individual and that the death of such a person would not be known to the then society is rather difficult to imagine. The motive of stealing was probably absent.

Further, detailed examination of the crania and other long bones found in Br. Meg. VII shows some interesting phenomena, which

TABLE 19
FREQUENCY OF LIMB BONES FOUND IN MEGALITHS AND OTHERS BURIALS

	MEGALITHS (27·5%)					
	I	*IV*	*V*	*VIII*	*X*	*VII*
No. of skeletons as per Wheeler	6	4	2	2	3	2
Humerus	3	2	3	—	—	4
Ulna	5	—	1	2	2	1
Radius	1	4	—	3	2	1
Femur	10	3	—	2	—	—
Tibia	7	2	1	3	2	—
Fibula	—	1	1	—	—	—
Total	26	12	6	10	6	6
Expected No.	72	48	24	24	36	24
Percentage	36·1	25·0	25·0	41·7	16·7	25·0

TABLE 19 *(contd.)*

	OPEN (27·5%)		*URNS* (60·8%)		
	17*B*1*B*10	17*A*4*UB*4	17*C*4*UB*2	17*A*4*UB*1	21*UB*2
No. of skeletons as per Wheeler	1	2	1	1	1
Humerus	2	2	2	2	1
Ulna	1	1	2	2	—
Radius	—	2	2	2	—
Femur	2	2	2	2	—
Tibia	2	2	2	1	—
Fibula	2	2	2	—	—
Total	9	11	12	9	1
Expected No.	12	24	12	12	12
Percentage	75·0	45·8	100·0	75·0	8·3

though difficult to interpret correctly, almost support the hypothesis that the pit-circles were macerating or exposure pits. Firstly, the mass, which appeared to be one skull (Br. Meg. VII, skull 1), really comprises fragments of two crania, adhering together; one adult showing very thick, spongy, light bones and the other of a child or young adult in which the petrous portions of the temporals have not yet ossified. It is difficult to state without a thorough chemical analysis of the above bones, but it appears that the adult fragments have lost comparatively more of their bony constituents than those of the child or young adult. This is indicative of the relative time of exposure of the two skeletons.

Secondly, the skull Br. Meg. VII, No. 2 is also a fragment of the right half of an adult skull. The other long bones, as given in List No. 1 (p. 125) may be associated with this cranium but it was difficult to find evidence of long bones of the two crania mentioned above.

Thirdly, some fragments of animal bones have been found in association with the skull fragment, Br. Meg. VII, No. 2.

These facts probably show that this pit-circle was used at least thrice for exposing the above three skeletons and in each some remains of the cranium have been left over. Then how are we to explain the presence of the animal bones? Such bones have rarely been found in the cist-circles (a tiny fragment may be present in Br. Meg. I) and it may be a distinguishing criterion between the cist-circles and the pit-circles. Only further exploration of the pit-circles may elucidate the problem.

3. HUMAN REMAINS FROM STONE AXE CULTURE

The Stone Axe Culture was revealed from two sites, Br. 17 and Br. 21. The former yielded one open burial (B.1.B.10) of a child about 12 years old and urn burials of three infants (A 4. U.B.1; C 4. U.B.2 and A 4. U.B.4). A 4. U.B. 4 showed remains of two infants[1], one of which was slightly more grown up than the other. This was apparent from the thickness of the cranial bones, which were found in bits, and the fragments of the ribs. The circumference of the ribs at the sternal end was 17 mm. in the case of the slightly grown up infant in comparison to 11 mm. of the other.

Site Br. 21 yielded only one urn of an infant (U.B.2). An adult unnumbered tooth, an upper third molar, was found from the box containing the remains of Br. 21, U.B.2. This will be apparent from the detailed identification List No. 2. This may be a later mix-up. Wheeler however reports on p. 196 of an isolated tooth found from Meg. IX.

A few fragments of animal bones were also found in association with Br. 17. B1.B.10., Br. 17. A 4. U.B.1 and Br. 17 C 4. U.B.2. These three lots were sent back to the Anthropological Survey of India.

It is probable that in the case of the open burial (B. 17. B.1B.10 and in the case of the urn burials in the majority of cases, the disposal of the dead involved only one primary process. It will be apparent from Table 19 that excepting for Br. 17. A 4. U.B. 4, and Br. 21. U.B. 2, all the skeletal parts are fairly well represented.

List No. 2

Skeletal Remains from Stone Axe Culture

Open Burial

Br. 17 B 1B 10 (child, aged about 12(?) years)

Skull	—	almost complete except base.
Tooth	—	milk canine—1
		milk incisor—1
		permanent lower lateral incisor and canine, on a fragment of mandible.

[1]This may also be due to later mix-up.

Scapula	—	fragment—1
Vertebra	—	fragments (a few complete)—1 lot.
Rib	—	fragments—1 lot.
Humerus	—	complete—2
Ulna	—	complete—1
Pelvis	—	ilium—2
		ischium—1
		pubis—1
Femur	—	complete—2
Patella	—	2
Tibia	—	complete—2
Fibula	—	complete—2
Carpal	—	6 (including 2 pisiforms)
Metacarpal	—	7
Tarsal	—	9
Metatarsal	—	11
Phalanges of hand and foot	—	28
Epiphysis of long bone	—	1 lot.
Unidentified fragment	—	1 lot.
Animal bone	—	1 lot.

Urn Burial

Br. 17 C 4 U.B. 2 (child, about 3 years)

Skull	—	represented by a fragment of basi-occipital, other fragments—1 lot.
Clavicle	—	complete—2
Scapula	—	complete—2
Vertebra	—	complete—27
		body—8
		fragments—4
Rib	—	complete—20
		fragments—5
Humerus	—	complete—2
Radius	—	complete—2
Ulna	—	complete—2
Pelvis	—	illium—Complete—2

		ischium—complete—2
		pubis—complete—2
Femur	—	2, one broken.
Tibia	—	2, one broken.
Fibula	—	complete—2
Tarsal	—	9
Metacarpal and Metatarsal	—	33
Epiphysis	—	13
Animal bone	—	a few fragments.

Br. 17 A 4 U.B. 1 (infant)

Skull	—	fragments—1 lot.
Mandible	—	3 fragments with teeth *in situ*.
Tooth	—	milk—12
Scapula	—	fragments—2
Vertebra	—	fragments—1 lot.
Rib	—	fragments—1 lot.
Humerus	—	fragments—2
Ulna	—	fragments—2
Radius	—	fragments—2
Pelvis	—	fragments—5
Femur	—	fragments—2
Tibia	—	fragment—1
Phalange	—	16
Unidentified fragments	—	1 lot.
Animal bone	—	1 lot.

Br. 17 A 4 U.B. 4 (infant)

Skull	—	fragmentary—belonging to two individuals as judged from the thickness of the cranial bones.
Mandible	—	fragment—1
Scapula	—	fragments—2
Clavicle	—	complete—2
Vertebra	—	fragments—1 lot.
Rib	—	fragments—1 lot. fragments 4, of another individual somewhat older.
Humerus	—	complete—2
Radius	—	fragments—2

Ulna	—	1, broken.
Pelvis	—	fragments—6
Femur	—	complete—2
Tibia	—	2, one broken.
Fibula	—	complete—2
Metatarsal and Phalange	—	19
Epiphysis	—	10
Unidentified fragment	—	1 lot.

Br. 21. U.B. 2 (infant)

Skull	—	fragment—1
Vertebra	—	body—1
Humerus	—	left—1
Tooth	—	one adult tooth, unnumbered, in the same box containing the above bones.

Besides the above skeletal remains from Stone Axe Culture sent to us, Wheeler on page 229 of his report gives details of 10 other urn burials all of which yielded bone remains of infants. His data are given below :

Burial Urn Br.17 No. 1	—	broken skull, some ribs and a few long bones of a small child.
Burial Urn Br.17 No. 2	—	infant's skeleton.
Burial Urn Br.17 No. 3	—	only a few small human bones were left at the bottom.
Burial Urn Br.17 No. 7	—	a few small decayed bones.
Burial Urn Br.17 No. 9	—	only a few small human bones.
Burial Urn Br.21 No. 1	—	some much decayed infant bones.
Burial Urn Br.21A No. 1	—	fragments of a child's skull, a few ribs and some long bones.
Burial Urn Br.21A No. 2	—	skeletal remains much decayed comprising a child's skull and a few long bones.

Burial Urn Br.16 B
No. 3 — a few infant bones.
Burial Urn Br.16 B
No. 4 — bones of an infant.

The megalithic burials and those from the Stone Axe Culture thus show altogether different methods of disposal of the dead. Megaliths appear to be secondary burials preceded by the primary process of exposure. This appears to apply in the case of both adults and children, the latter being represented by skull D from Br. Meg. I and also that of Br. Meg. IV (c) probably. Small infants were also similarly treated as evidenced by the small bits of cranial bones from Br. Meg. V (a) & (b).

In the case of Stone Axe Culture small babies probably below 3 years of age have been found in urns. Wheeler mentions the "infant being folded up into close compass and packed into the pot". The serial numbers of the urn burials in Wheeler's list given above show 10 additional urn burials, thus giving a total of 14 urn burials from this culture. The open burial No. Br. 17. B.1.B.10 shows that grown up children of about 12 years of age were simply buried with grave furniture. It is not known what was the custom for adults.

4. DESCRIPTION OF CRANIA AND OTHER BONES FROM MEGALITHS

Br. Meg. I. Skull A (pls. VI-VII)

Restored at the Anthropological Survey of India, Calcutta, condition in which found in the field unknown, skull was probably badly crushed, complete excepting a large portion of the occipital, sphenoid, basioccipital and the anterior portion of the foramen magnum, right half of the skull shows very small unconnected pieces fixed on a wax base.

Adult, appears to be male. Mesocranial (78·21), Chamaecranial (57·82), Tapeinocranial (73·93), Platyrrhine (52·94).

Long oval in shape, broadest at the parietal tuberosities, coronal suture present from bregma to stephanion on both sides, sagittal suture open about half the region from bregma, lambdoidal suture present on both sides from lambda for a short distance, right parietal foramen present.

Medium vault, forehead straight, supraorbital ridges medium,

nose concave, alveolar prognathism present, occipital region nearly rounded in appearance, mastoid well developed, broken at the tip, supra-mastoidal crest fairly marked, zygomatic process missing, pre-auricular and post-auricular portions nearly equal.

Left side does not show anything peculiar from the above.

Much of the occipital bone missing, muscle impressions cannot be judged due to the very small fragments joined together on a wax base, two large mastoidal foramina on right and one on left.

Forehead vertical, medium breadth and height, glabella prominent, face broad, malar prominent and well developed, nose platyrrhine (52·94), medium broad at the base, orbits quadrilateral (?) in shape.

Palate more horse-shoe-shaped than 'U', very shallow as appears from the restoration.

No teeth present, except right III molar, worn out and partly broken, a number of other teeth also broken, only roots present in sockets. Both right and left I and II molars appear to have fallen long ago, since the alveolar margins are fused, nothing could be discerned due to restoration, glenoid fossae remarkable for its width and shallowness.

Br. Meg. I, Skull B (pls. VIII-IX)

Restored at the Anthropological Survey, a large fragment of frontal, two fragments from either side of occipital and a few fragments of the temporal bones missing, facial portion nearly complete excepting for the sphenoids and the inner bones behind the nose. Found badly compressed at the occipital region, pushing the parietals above the former.

Adult male, very well developed as judged from the muscular impressions. Brachycranial (83·52), orthocranial (61·26), tapeinocranial (79·64), hyperplatyrrhine (62·50).

Nearly round in shape, broad, flat at the top, broadest at the parietal tuberosities, not so sharply seen as in skull A, coronal and sagittal sutures open, occipital side abruptly slopes down, supra-orbital ridges present only at the left side, also visible from the vertical aspect, no parietal foramina.

High vaulted, supratemporal line very much marked, and runs continuously from the fronto-temporal ridge to the occipital side, where it shows a definite eminence before merging on to the supra-mastoidal crest, latter very much prominent, mastoid well developed, frontal bone sloping, shows a deep furrow at the forehead,

supraorbital ridges prominent, nasal depression very deep, alveolar prognathism well marked, occipital side slopes down abruptly, shows a prominent external occipital protuberance, occipital bone shows a flat depression above the lambda, pre-auricular development distinctly greater than the post-auricular, right side almost similar to that of the left.

Somewhat pentagonal in outline with a flattened occiput, mastoids prominent, superior nuchal crest marked, lambdoidal suture open.

Face very broad, forehead broad, sloping backwards, orbits quadrilateral, nose concave, sunken, depressed at the root, supraorbital ridges prominent, slightly overhanging in appearance, nose very broad (52·50); lower border of pyriform aperture oxycraspedote, malars very broad and prominent.

Palate very deep, U-shaped, teeth as a whole large in size, all present excepting two canines and left I premolar, no trace of III molar on either side, teeth highly worn out, molars and premolars show a marked slope towards the lingual side, specially marked on I right molar; occipital region shows prominent external occipital protuberance, superior nuchal arch, as also the inferior nuchal ones; left mastoid very prominent, left digastric groove broad and wide, glenoid fossae very wide and shallow; occipital condyles missing; cranial bone appears to be thicker than that of skull A.

Br. Meg. I, Skull C (pls. X-XI)

Restored at the Anthropological Survey, found in a badly distorted condition, vault badly crushed and compressed below distorting the whole facial configuration, frontal bone shows an irregular large hole about 57 mm. long and 43 mm. broad, it being filled up by some foreign substance during restoration and a few disjoined fragmentary pieces being fixed near about. Their removal was not attempted, and the true nature of the hole could not be assessed; photograph however shows a different structure of the hole after restoration.

Adult male, mesocranial (79·13), hypsicranial (63·68), metriocranial (80·23), hyperplatyrrhine (61·05).

Long oval in shape, greatest width at the parietal tuberosities, occiput showed a rounded bulge, forehead nearly vertical, supraorbital ridges slightly perceptible, coronal suture open, some portions of frontal bone missing, sagittal suture open, no parietal foramen.

Medium vaulted, occipital side rounded, forehead nearly vertical, supraorbital ridges traceable, temporal ridge well marked, continued throughout the whole of parietal surface; malars prominent, mastoids medium, supramastoidal crest medium, large fragment of temporal bone missing, particularly at the sphenoidal region, right side almost the same excepting mastoid, broken at the tip, alveolar prognathism apparent, pre-auricular and post-auricular regions nearly equal.

Circular in outline with a rounded bulge very much similar to that of A, right occipital broken, lamboidal suture open, mastoids moderately developed, digastric groove of medium depth.

Forehead nearly vertical with a furrow above the supraorbital ridges, latter being present in traces, orbits quadrilateral (?), (left orbital wall restored), nasal bone missing, molar prominent, alveolar margin broken, shows prognathism.

Palate U-shaped, no teeth excepting a fragment of left III molar, which appears to be broken, alveolar margin shows fusion, glenoid fossa unlike skulls A and B, appears to be deep, muscular impression on lower border of occipital bone shows a very rough and rugged surface.

Br. Meg. I, Skull D

Badly crushed, a large fragment of left parietal missing, skull probably distorted due to some pressure falling at the vertex resulting in the form of a rhombus, basal portion intact, appeared to be of a child, 12 (?) years old. A permanent III molar was found sticking on the alveolar border at the extreme right end of the maxilla.

The restoration of the skull was possible in two parts, the intact base with a portion of frontal bone and the rest of the calotte with a large portion of right parietal, and almost the whole of left parietal.

Cranial bone, as is expected of a child, is thin in comparison to the other skulls described before.

No measurements are possible.

A child's mandible was also found in the megalith and the above skull may be ascribed to it.

The following measurements were taken before restoration of the skull.

Max. length	—	181·5 mm.
Glabella—opisthion length	—	174·5 mm.
Max. breadth (at the parietal boss)	—	125 mm.

Auricular height	—	96·5	mm.
Least frontal breadth	—	88·5	mm.
Bizygomatic breadth	—	84	mm.
Bimastoid breadth	—	80	mm.
Palatal breadth (between I and II molars)	—	33	mm.
Nasion—inion length	—	165	mm.
Length breadth index	—	68·87	
Length height index	—	53·16	
Jugofrontal index	—	110·62	

This skull, after restoration of the frontal bone and with its base and the facial region intact, was sent to the Anthropological Survey of India for an X-ray photography of the dentition. During the above photography it was accidently broken into pieces making further restoration impossible. The measurements given above were taken before the above unfortunate incident.

Nothing could be judged excepting that the skull is long with a low forehead and bulging occiput, no suture excepting the left lambdoidal suture, which is open, could be seen.

Longish in contour, low vaulted, temporal line weakly present, occipital region rounded, forehead nearly sloping backwards with a slight furrow above the glabella, which is prominent; mastoids weakly developed but supramastoidal crest discernible.

Occipital bone fairly complete, shows rounded bulge, mastoids show a rugous muscular impression, two mastoidal foramina on the right, muscular impressions fairly well marked.

Facial region compressed sideways and due to secondary breakage during X-ray photography it has lost many other parts. Glabella prominent with a furrow above it, lower border of the pyriform aperture—amblycraspedote, maxillary region appears to be rather strongly built for a child.

On the basal side the palate is in fairly good condition, except that it has undergone some lateral compression, I permanent molar and two deciduous molars present on each side, II molar visible on either side at the alveolar margin, palate deep, horse-shoe to U-shaped in outline, glenoid fossae shallow.

Br. Meg. I, Skull E (pl. XII)

Sent in the same condition as found in the field, crushed at the right temporal, causing a deep depression at this region, parietals thereby pushed upwards in the form of inverted V at the region

of bregma, and the occipital bone pushed outwards. Skull undergone a severe lateral compression, basal region fairly intact, measured 204 (?) mm. in length, which, prior to restoration was 194 mm., correspondingly breadth was 108 mm. before restoration, measured 131 (?) mm. afterwards.

Adult female (?), hyperdolichocranial (64·22?), chamaecranial (54·90?), metriocranial (85·49?), leptorrhine (36·96?).

Long oval, parietal tuberosities rounded, forehead retreating, occipital region shows circular bulge, sagittal suture open.

High vaulted, forehead retreating, occiput bulged and circular, mastoid prominent, supramastoidal crest medium, temporal ridge traceable up to a slight distance, pre-auricular and post-auricular regions nearly equal.

Right side missing in major parts.

Occipital outline more or less pentagonal, occipital bulge prominent, other parts missing.

Facial region compressed laterally distorting the forehead, orbits and other parts of the face, orbits quadrilateral in shape, supraorbital ridges present in traces as also the furrow above it, lower border of the pyriform aperture—amblycraspedote.

Base intact, laterally compressed, causing part of the right side overlapping the left at the foramen magnum and the reverse of it at the region of the palate; only right I molar, of which a fragment is missing, and II premolar present, glenoid fossae shallow and smaller in size than the others described above.

Br. Meg. I. Skull F

Skull received in 67 large and 36 very small fragments, probably at a stage preparatory to restoration; field condition unknown. After restoration two large fragments of parietals could be joined together with nearly half of the frontal bone and a small fragment of the occipital bone below the lambdoidal suture; a fragment of right maxilla with a few teeth was aso found. A limited number of measurements could be taken as given in Table 20.

Adult male, brachycranial (80·75?), appears to be of a very robust individual, cranial bones thicker than the others described above, orthocranial (62·27), tapeinocranial (77·15).

Broad oval in outline, flat at the top, retreating forehead, bulging occiput, all sutures open excepting a part of the coronal suture at the region of stephanion, parietal boss (left) well marked, maximum breadth at the parietal tuberosities.

TABLE 20

MEASUREMENTS OF THE CRANIA FROM BR. MEG I. (IN MM.)

	M IA	*M IB*	*M IC*	*F IE*	*M IF*	*IV (c)*	*Open burial VIII(b) Br. 17 B.B10*	
Max. cranial length	179	182 ?	184·5	204 ?	187 ?	175·5	183	179
Max. cranial breadth	140	152	146	131 ?	151· ?	—	136	124
Nasion inion length	195	168	—	193 ?	—	—	—	171
Basilo bregmatic height	—	—	138	—	—	—	—	—
Auricular height	103·5	111·5	117·5	112	116·5	—	—	106·5
Least frontal breadth	100	101·5	100	75 ?	—	—	—	—
Greatest frontal breadth	118	120	—	—	—	—	—	—
Bimastoid breadth	—	111	98	60 ?	110	—	—	93
Bizygomatic breadth	—	—	—	89 ?	—	—	—	—
Nasion basion line	—	—	98 ?	119 ?				
Prosthion basion line	—	—	102	114 ?				
Nasion prosthion line	67	64	57	51 ?				
Nasal height	51	48	47·5	46 ?				
Nasal breadth	27	30	29	17 ?				
Inter orbital breadth	—	—	—	13 ?				
Orbital breadth, right	—	46	—	34 ?				
Orbital breadth, left	—	48	—	36·5 ?				
Orbital height, right	—	—	35	31 ?				
Orbital height, left	37·5	31 ?	35	30 ?				
Maxillo alveolar breadth	—	72	—	—				
Palatal breadth	47	—	41	—				
Occipital foramen, length	—	—	29.5	22 ?	—	—	—	—
Occipital foramen, breadth	—	—	30	12 ?	—	—	—	—

TABLE 20 (*contd.*)

	M IA	*M IB*	*M IC*	*F IE*	*M IF*	*IV (c)*	*Open burial VIII(b) Br. 17B.B1*	
Sagittal cranial arc	375	373	385	400 ?	—	—	—	295
Transverse cranial arc	317	332	329	—	—	—	—	—
Horizontal circumference	505	527	515	—	—	—	—	—
Bi-auricular breadth	113	127	188	76 ?	—	—	—	99
Outer bi-orbital breadth	—	115	—	—	—	—	—	91
Inner bi-orbital breadth	—	109	—	—	—	—	—	83
Greatest occipital breadth	96	—	—	—	—	—	—	—
Frontal arc	120	133	—	—	—	—	—	116
Parietal arc	125	128	126	—	—	—	—	130
Occipital arc	130	113	126	129	—	—	—	96
Frontal chord	107	114	112	—	—	—	—	104
Parietal chord	114	111·5	115	—	—	—	—	112
Occipital chord	105	93	103	96 ?	—	—	—	85·5
Bi-orbitonasal arc	—	116	—	—	—	—	—	—
Glabella nasion length	6·5	12?	11?	7 ?	—	—	—	10
Nasion lambda line	173	174	173	187 ?	—	—	—	175
Calvarial height	107	111·5	107	—	—	—	—	96
Lambda calvarial height	69	73·5	—	—	—	—	—	65
Bregma position line	98	101	100	—	—	—	—	85
Frontal perpendicular	28	27	28	—	—	—	—	24
Parietal perpendicular	21·5	28·5	20	—	—	—	—	28
Occipital perpendicular	30	27	30	—	—	—	—	16·5
Frontal inclination angle	66°	62°	63·5°	—	—	—	—	—
Occipital inclination angle	87°	83°	84·5°	—	—	—	—	—

TABLE 20 (*contd.*)

	M *IA*	*M* *IB*	*M* *IC*	*F* *IE*	*M* *IF*	*IV (c)*	*Open burial* *VII (b)Br.*	17*B.B*10
Indices								
Length-breadth	78·21	83·52	79·13	64·22?	80·75	—	74·32	69·27
Length-auricular height	57·82	61·26	63·69	54·90?	62·30	—	—	59·50
Breadth-auricular height	73·93	73·36	80·48	85·50?	77·15	—	—	85·89
Length-basion-bregma height	—	—	74·80	—	—	—	—	—
Breadth-basion-bregma height	—	—	94·52	—	—	—	—	—
Superior facial	—	—	—	57·30?	—	—	—	—
Jugofrontal	—	—	—	84·27?	—	—	—	—
Trans. Fr. Par.	71·43	66·78	68·49	57·25?	—	—	—	—
Orbital : right	—	—	—	91·18?	—	—	—	—
Orbital : left	64·58	—	—	82·19?	—	—	—	—
Nasal	52·94	62·50	61·05	—	—	—	—	—
Prognathic	—	—	104·81	95·79?	—	—	—	—

High vaulted, flat and broad at the top, temporal line not so marked as in others, forehead sloping, occiput bulging, marked by a depression around the lambdoidal region, pre-auricular length greater than post-auricular, supramastoidal crest prominent.

Right side represented by the temporal and the mastoid process, similar to the left.

Represented by the left half of the frontal bone which shows supraorbital ridge in trace.

Outline circular, with prominent mastoids, lambdoidal suture open, two mastoidal foramina situated closely in the left side nearly similar to those in skull A, in which they occur on right side.

Represented by the two temporals, very broad and deep glenoid fossae, mastoid processes prominent, digastric groove deep.

Mandibles (Br. Meg. I)

(a) Fragment of left half, adult, with the III molar and the roots of I, II molar and the I premolar *in situ,* III molar highly worn out, individual possessed very strong chewing muscles, condyles and coronoid processes missing, gonial angle also shows strong muscle impression.

(b) Mandible of a child, described on page 125 (List No. 1).

The following measurements of the mandibles could be taken :

TABLE 21

MEASUREMENTS OF MANDIBLES (IN MM.)

	Br. Meg. I (adult)	*Br. Meg. I (child)*	*Br. Meg. V (adult)*
Bigonial breadth	—	75	—
Minimum breadth of ramus	34	26	34
Symphyseal height	30 (?)	16 (?)	—

Maxillary Fragments

Two fragments of upper jaw were found in Br. Meg. I; one in association with skull F and the other isolated.

(i) *Maxilla F.*—Adult, nearly half of left side, with two molars I and II in good condition, III molar and II pre-molar broken, molars not so highly worn out, cusps visible, specially II molar shows four such cusps, I molar somewhat more worn out than II.

(ii) *Isolated Maxilla.*—Adult, almost half of the left side present, showing I molar and II premolar *in situ*, roots of II molar and I premolar embedded in sockets, I molar more worn out than that of F and of larger dimension than the latter.

Other Skeletal Parts

Humerus.—Three fragments of humerus found, appear to belong to three different individuals, fragment (a) appears to be of a very robust individual, (b) to a person less robust than (a), and (c) appears to be the slenderest of the three, as the following measurements will show :

		(a)	(c)
Breadth of the distal end	—	70 (?) mm.	57 mm.

(c) is much smaller than the fragment (a) and since the former appears to be of an adult person, it may be correlated to the female individual represented by skull E.

TABLE 22

MEASUREMENTS OF FEMORA FROM BR. MEG. I. (IN MM.)

	(a) Lt.	*(b) Rt.*	*(c) Rt.*	*(e) Lt.*
Absolute length	434	—	468	—
Physiological length of shaft	428	—	—	—
Prox. dorso-ventral-diam. of shaft	27·5	24 ?	32·5	23 ?
Prox. medio-lateral diam. of shaft	34·5	36 ?	31	30 ?
Med. dorso-ventral-diam. of shaft	30	30	37	28 ?
Med. medio-lateral diam. of shaft	30	29	26	25 ?
Med. circumference of shaft	94	93	104	85
Vertical diam. of head	41·5 ?	—	43	—
Transverse diam. of head	—	—	42	—
Circumference of head	—	—	139	—
Vertical diam. of neck	31 ?	—	34	26
Transverse-diam. of neck	—	—	21	22
Dorso-ventral diam. of distal end	33 ?	20 ?		
Medio-lateral diam. of distal end	45 ?	52 ?		
Pilastric index	100·0	103·5	142·3	112·0
Platymeric index	79·7	66·7	104·8	76·7

Ulna.—Two ulnar fragments (a) and (b) (List No. 1, p. 125) appears to belong to two individuals, one robuster than the other.

The existing fragment of child's ulna, (d), without the two epiphyses is 116 mm. long. Further, its slenderness is indicative of a child and may be identified to skull D.

The following measurements of the adult ulna (a), were possible :

Max. breadth of olecranon cap	..	22 mm.
Thickness of olecranon cap	..	25 mm.
Height of olecranon cap	..	4 mm.

Femur.—Altogether 10 complete and incomplete femora were found in this megalith. As will be seen from List No. 1 (p. 125) that (a) and (b) may belong to the same individual and, (c) and (d) to a second one. Fragment of the distal epiphysis (j) belong to a child, while nothing can be said of the fragments (f)—(i).

Table 22 shows that (a) and (b) fairly agree in the measurements, excepting the proximal dorso-ventral diameter, which shows a lower value of 24 (?) mm. in the case of (b) and is due to the broken nature of the head of the femur.

Of the other fragments, four and a head fragment (i), belong to the left side, while two to that of the right. Six individuals of this megalith may thus be accounted for,

(a) & (b)	..	1 person
(c)—(h)	..	4 persons
(j) (child)	..	1 person
		6 persons

The upper end of the femur (e) appears to belong to a female in view of its slenderness.

Tibia.—There are 7 fragments, of which fragment (g) belongs to a child and others to adults. Fragment (f) is the slenderest of all the adults and may possibly belong to a female.

Br. Meg. IV.

This megalith yielded fragment of an adult skull No. IV (b) and of a child or young adult, No. IV (c).

Nothing could be made out of the fragments IV (b). A few of these fragments may belong to IV (c) but that there were two adult skulls is obvious from a fragment of the occipital bone of IV (b), which is almost intact in IV (c). The latter appears to belong to a child as

TABLE 23

MEASUREMENTS OF TIBIAE FROM BR. MEG. I (IN MM.)

	(a) *Rt.*	*(b)* *Rt.*	*(c)* *Lt.*	*(d)* *Lt.*	*(e)* ?	*(f)* ?
Prox. dorso-ventral diam.	39 ?	—	—	—	—	—
Prox. medio-lateral diam.	44	—	—	—	—	—
Med. dorso-ventral diam.	33	36 ?	34	36·5 ?	25	19
Med. medio-lateral diam.	25	26 ?	—	25·5	22	15
Dist. dorso-ventral diam.	—	—	—	—	23	—
Dist. medio-lateral diam.	—	—	—	—	20·5	—
Circumference of shaft (med.)	93	—	—	—	76 ?	53
Least circumference of shaft	83	—	—	—	70	—
Platycnemic index	75·8	72·2	71·8	88·0	79·0	

judged from the thin cranial bones and its small size. The cranial bones are adhering to the lateritic endocranium which has retained its shape, at least the length to some extent. The description of the skull is given below.

Long oval, tapering at the region of the forehead and a bulge at the occipital side, large fragment of the vault missing, sagittal suture not discernible.

Large portions of parietal, temporal and frontal missing, forehead retreating , vault medium, occipital bulge circular and pronounced, temporal ridge present at the fronto-temporal region, only the length of the skull could be measured, which is 175·5 mm.

Left side— a few fragments are sticking on the lateritic mass. Large portions of the occipital bone along the temporals and the mastoid missing, occipital bulge pronounced, lambdoidal suture open on both sides from the lambda for a certain length, no prominent muscular impressions on the nuchal region.

Entire facial portion missing, forehead vertical to some length above the prominent glabella, then it retreats backwards; roof of the left orbit present, shows a sharp orbital margin, no trace of the supraorbital ridges.

Nothing present excepting a fragment of the right temporal showing small glenoid fossa.

The rest of the other bones are not of any anthropometric use. They however show two adult individuals, one of whom is robuster than the other, besides the young adult or child represented by the skull above.

Br. Meg. V.

Crania and Mandible.-- Represented by a small fragment of an adult crania and a lot of fragments of child cranium, which includes a fragment of the unossified petrous portion of the temporal bone.

There is also a fragment of mandibular symphysis without any teeth, but shows four small sockets of incisors. This fragment appears to be of a child.

A fragment of right half of an adult mandible, No. V (a) & (b), was also found with the III molar *in situ* and the broken roots of the I and II molars in sockets. It was badly crushed into several pieces, but could be restored with a portion of the horizontal ramus missing. It shows deep muscular impression particularly at the gonial angle which had caused a rugous area bent slightly outwards.

Only minimum breadth of the ramus could be measured, which is 34 mm. The III molar is highly worn out.

Humerus.-- The following measurements (in mm.) of the three shaft fragments are as follows.

	(a)	(b)	(c)
Circumference of the shaft (at the upper third)	67	67	62
Least circumference of the shaft	..	.. 67	..

The measurements appear to show that humerit (a) and (b) belong to a person robuster than (c).

Ulna.-- The least circumference of the disphysis of the ulna measures only 38 mm.

Br. Meg. VII (1) (Pit-circle)

This cranial mass was found in a peculiar condition in which the anterior and the posterior portions of a skull could not at first be determined. A part of the sagittal suture with two fragments of the parietals on either side and a fragment of the occipital below were visible from the mass. As such the different fragments were carefully removed after a sketch, in which all fragments were serially numbered, had been prepared.

After removal of the bones it was seen that the mass contained fragments of two skulls stuck together by the lateritic soil. After restoration, it was seen that a large portion of the skull of a child or young adult (?), which has been numbered (a), has been

adhering to the parietal fragment of another adult skull numbered (b). There are also some fragments of the frontal bone of skull (a) showing bits of orbits, two unossified pieces of the petrous portion of the temporals, and a fragment of left temporal bone showing a part of external auditory meatus. The part of the sagittal suture with fragments of the two parietals on either side and a fragment of the occipital below, mentioned above, belonged to the child.

The cranial bones of the adult were thick, spongy and lighter than the average.

No measurements could be taken.

Br. Meg. VII (2) (Pit-circle)

Only the right half of a skull besmeared with wax and plasticine was received. The internal surface was filled with earth and the occipital surface was crushed thereby breaking the other bones all around into small pieces. Facial region is not at all discernible. In the process of cleaning a large number of fragments of the skull cap was found. It also contained fragments of the base of the cranium showing the right glenoid fossa.

Seven complete and 7 other fragments of teeth were also found.

A few fragments of animal bones were suspected. They were sent back to the Anthropological Survey.

Of the other long bones given in List No. 1 only the radius can be measured for the least circumference of diaphysis. This gives a measurement of 46 mm. The existing length of the radius is about 188 mm. and appears to be quite robust. This is also indicated by the fragment of the ulna.

Br. Meg. VIII (a)

This megalith yielded two crania Nos. (a) and (b). Both were received in the condition as found in the field. Skull (a) is a long oval matrix of hard lateritic soil with a few fragments of cranial bones sticking on it. The fragments appeared to be of the left parietal and of the occipital bone. No remains of the vault or the right parietal were present. No important anatomical feature could be recognized.

Br. Meg. VIII (b)

This cranium is represented by a calotte, the facial, the basal, a large portion of the occipital, and the right parietal missing. Before taking out the inner earth, skull measured:

Max. length .. 183 mm.
Max. breadth .. 136 mm.

In the process of cleaning the following bones were found inside the calotte :

(a) portion of zygomatic bone,
(b) root of a tooth, probably incisor, and
(c) a part of occipital.

It appears to be of a young adult or female (?).

Long oval, maximum breadth at the parietal tuberosities, sutures not visible due to eroded parts of the skull, endocranial sutures, coronal and sagittal open, forehead sloping, occipital bone missing.

Vault cannot be determined, also undergone some amount of flattening, temporal bone missing as also the occipital, temporal-ridge marked at the fronto-temporal, forehead low and sloping, supraorbital ridges mediumly developed, left parietal shows a wide region with rounded fissures and three circular perforations below, may be pathological in nature, right lateral side also shows such eroded area. The whole skull is full of such large and small depressions.

The skull appears to be somewhat thicker than normal

No measurements are possible.

Mandible.—Two fragments were found :

Br. Meg. VIII (a).—Fragment of the horizontal ramus at the gonial angle.

Br. Meg. VIII (b).—Fragments of the two mandibular arches showing the dorsal fold of bone only—without teeth sockets, appear to be smaller in size and robustness than fragment (a) described above.

Of the other long bones only measurements (in mm.) of the shaft of radius could be taken. They are as follows :

	(a)	(b)
Sagittal diam.	18	17
Transverse diam.	13·5	11

The above measurements will show the robustness of (a) in comparison to that of (b). The skeletal materials show however the presence of two individuals one robuster than the other.

The slender individual may probably be identified as a female, evidence of which though not very much evident in the skull, appears to be present in the mandible, radius, femur and tibia.

Br. Meg. X. (pl. IA)

This megalith is represented to us by only a few long bones, the details of which are given in List No. 1.

No measurements of any fragment are possible.

5. DENTAL CHARACTERISTICS OF MEGALITHIC PEOPLE

The dental peculiarities of the skeletons from megaliths require a separate treatment. The large size of the mandible, the maxilla, with its broad, deep to shallow glenoid fossae, and above all the large and strong teeth, all point to the powerful chewing muscles of the megalithic people.

A. maxillary molars

Br. Meg. I., Skull B.—All teeth highly worn out, particularly the two I molars show a marked wearing resulting into an angular slope towards the lingual border, which is particularly marked on the right side. This has been a great bar to the correct measurement of the labio-lingual diameter. No cusps are visible on I molars, 3 cusps on the II, while the III molars are unerupted on either side. The four incisors are also peculiar in not showing a sharp angular cutting edge, rather the incisive margins show an almost rectangular surface.

Br. Meg. I., Skull D.—Child's maxilla—I permanent molar erupted, crown of the II just visible, right I molar slightly worn out, 4 cusps in each.

Br. Meg. I., Skull F.—Fragment of left upper jaw, I molar highly worn out on the lingual border, no cusps visible, shows an uneven surface towards mesial border, causing a depression at the distal end; II molar though worn out shows 3 cusps with pit-like depressions.

Br. Meg. I.—Left maxillary fragment, I molar highly worn out with small bits of enamel chipped off, no cusps visible.

Br. Meg. VII (2).—Right III upper molar, with 3 roots and 4 prominent cusps showing Y 4 pattern.

Isolated III Molar.—Found in the same box containing remains of urn burial No. Br. 21. U.B. 2—right (?), roots fused and bent, 3 cusps slightly worn out.

B. mandibular molars

Br. Meg. I.—Left III molar on a fragment of mandible, highly

TABLE 24

MEASUREMENTS OF MOLAR TEETH FROM MEGALITHS (IN MM.)

A. MAXILLARY MOLARS

	Br. Meg—I										
	Skull B				*Skull D Child*		*Skull F*		*Br. Meg. VII (2)*		*Isolated*
	I		*II*		*I*		*I*	*II*	*I*	*III*	*II*
Molars	*Lt.*	*Rt.*	*Lt.*	*Rt.*	*Lt.*	*Rt.*	*Lt.*	*Lt.*	*Lt.*	*Rt.*	*Rt. (?)*
Labio-lingual diameter	11	12	12	11	7	8	8	10	11	10	7
Mesto-distal diameter	10	9	9.5	8	10	10	9	9	12.5	10	7
Crown Index	110	133·33	126·32	137·50	70	80	88·89	111·11	88	100	100

B. MANDIBULAR MOLARS

	(Skull D?) Child		*Br. Meg. I*	*Br. Meg. IV (b)*	*Br. Meg. (a) & (b)*	*Br. Meg. V*	*Br. Meg. VII (2)*
	I	*I*	*III*	*II*	*III*		*II*
Molars	*Lt.*	*Rt.*	*Lt.*	*Lt.*	*Rt.*		*Lt.*
Labio-lingual diameter	7	7	11	8	11		8
Mesio-distal diameter	10	10	12·5	9·5	11		10·5
Crown Index	70	70	88	84·21	100		76·19

worn out, forming a deep concavity, deepest at the lingual border, causing a sharp raised point at the mesio-lingual corner.

Br. Meg. I.—Mandible of a child, probably belonging to skull D, shows two permanent I molars, 5 cusps, slightly worn out at the right.

Br. Meg. IV (b).—Left II molar, roots broken, 4 cusps, show medium wearing, labial cusps show oval pit-like depression whereas the two linguals are not so deep as the labials but are circular in shape.

Br. Meg. V (a) & (b).—Right III molar, highly worn out, no traces of any cusp, bits of enamel chipped off from the distal end.

Br. Meg. VII (2).—Left II molar, slightly worn out, 4 cusps showing +4 pattern.

Table 24 shows the labio-lingual and the mesiodistal diameters of molar crowns and their crown indices have been worked out after Moorrees (1957).

It shows that in the case of maxillary molars the labio-lingual diameter appears to be greater than the mesio-distal one, in the case of skull B only, whereas in others the reverse of it is seen, the diameters being similar in the case of two III molars. The mandibular molars show greater mesio-distal diameters than the labio-lingual ones, they being similar in dimension in Br. Meg. V (a) & (b) only.

6. DESCRIPTION OF CRANIUM AND OTHER BONES FROM STONE AXE CULTURE

Br. 17. B1. B 10.—This open burial yielded a nearly complete skeleton of a child about 12 years of age. Among the carpal bones two pisiforms were found which nearly confirm the above age. The skeleton was buried extended, lying on its back with the head towards the east (Wheeler 1947).

The skull (pls. XIII-XIV) was received in fragments but could be restored with the exception of fragments of right temporal, frontal and parietal and part of the left temporal as well. Cranial base was missing excepting the petrous portions of the two temporals. At the facial region the upper parts of the two orbits and parts of the molars were present.

Hyperdolichocranial (69·27), chamaecranial (Rt-58·10 ; Lt-63·12).

Elongated in outline, broadest at the well marked parietal tuberosities, occipital region shows a rounded bulge, sagittal and coronal sutures open, region at bregma somewhat distorted in shape due to the flatness of the parietals.

Medium vaulted, forehead almost straight, with a slope backwards, glabella prominent, occipital region shows an abrupt slope above the region of lambda after which there is a pronounced circular bulge, mastoid small, supramastoidal crest present in trace.

Right side almost the same though a large portion is missing.

Almost pentagonal in outline, a number of foramina present at the region of the superior nuchal arch, muscular impressions weakly present.

Forehead nearly vertical with a backward slope, supraorbital ridges not marked, glabella prominent, orbits, of which the nasal borders are missing, rectangular; malars not prominent.

Only the petrous portion of the temporals present; glenoid fossae shallow.

The other bones of this skeleton were fairly well represented (*cf.* Table 19). The epiphyses of the long bones have not yet ossified. They were however measured (Table 25) for the maximum length without the epiphyses and for other measurements of the diaphyses in order to compare them with those of the other skeletons found in the urns of the Stone Axe Culture.

Br. 17. C.4. U.B. 2.

Child, about 3 years old. Among the tarsals, a navicular, an intermediate cuneiform and a lateral cuneiform were found. No carpals.

As will be evident from Table 25 the long bones are much smaller than those of the skeleton, No. Br. 17 B..1 B.10.

Br. 17. A.4. U.B. 1.

Infant skeleton, all long bones broken as such no measurements of the diaphysis were possible. It however appears from the other characteristics of the long bones to be younger than C.4. U.B.2 but older than A.4. U.B. 4, described below.

Br. 17. A.4. U.B. 4.

This urn, as already mentioned, in List No. 2 (p. 134) contained remains of two children, as evidenced by the thickness of two crania and rib fragments. Long bones of one individual were however found, which measure nearly half the length of Br. 17.C.4.U.B.2.

TABLE 25

DIAPHYSEAL MEASUREMENTS OF LONG BONES FROM STONE AXE CULTURE (IN MM.)

	Measurements	*Br.*17*B*1*B*.10		*Br.*17*C*.4*U*.*B*2		*Br.*17*A*4*U*.*B*1		*Br.*17*A*4*U*.*B*.4		*Br.*21*U*.*B*.2
		Lt.	*Rt.*	*Lt.*	*Rt.*	*Lt.*	*Rt.*	*Lt.*	*Rt.*	*Lt.*
Humerus :	Max. length	175	175	127	128	—	—	67	67	106
	Circum. of shaft (upper third)	40	40	35	36	—	—	24·5	25	35
	Least circum. of shaft	38	37	33	33	—	—	19	20	31
Radius :	Max. length	—	—	101	101	—	—	—	—	—
Femur :	Max. length	243	245	170	169	—	—	79	79	—
	Prox. dorso-ventral diam.	20	19·5	16	15	13	—	9	9	—
	Prox. med-lat.	22·5	22	20	19	14·5	—	9	9	—
	Med. dorso-ventral	16·5	16·5	10·5	11	10	10	6·5	6	—
	Med. med-lat. ,,	15	16	12	12·5	13	13	7	7	—
	Med. circum. of shaft ,,	52	52	40	39	36	36	21	21	—
	Dist. dorso-ventral ,,	—	17	—	14	10	10	9	9	—
	Dist. med-lat. ,,	36	34	—	29	23	23	16	16	—
Tibia :	Max. length	212	211	—	141	—	—	—	69	—
	Prox. dorso-ventral ,,	22	23	—	17	—	—	—	7	—
	Prox. med-lat. ,,	20	20	—	16	—	—	—	9	—
	Med. dorso-ventral ,,	18	18	—	12·5	—	—	—	8	—
	Med. med-lat. ,,	14	13	—	11	—	—	—	7	—
	Dist. dorso-ventral ,,	19	19	—	15	—	—	10	9	—
	Dist. med-lat. ,,	18·5	18	—	16	—	—	10	9	—
	Least circum. of shaft	49	48	—	36	—	—	22	22	—

As such this infant appears to be much below three years of age.

Br. 21. U.B. 2.

This infant is represented by a very few bones in comparison to those stated above. It was represented by only one humerus which measures 106 mm. and thus appears to be intermediate in development between A.4. U.B.4. and C.4.U.B.2.

7. ETHNIC AFFINITIES

In view of the paucity of the skeletal remains and also due to their fragmentary and deformed nature, a detailed discussion on the ethnic affinities of the Brahmagiri finds will be rather tentative in nature.

Br. Meg. I has yielded four skulls (A, B, C, and F) in a comparatively better state of preservation and they appear to show some interesting ethnological pointers. These four skulls vary between the cranial index of 78·21 and 83·52 (Table 20), thus giving a mean index of 80·40. The length-auricular height index varies between 57·82 and 63·69, showing a mean of 61·27. The mean breadth-auricular height index is 76·23 with the minimum range of 73·36 and the maximum of 80·48. The nasal index is available for three crania, A, B and C, which shows a mean of 58·83, the range varying between 52·94 and 62·50. Thus in general the average of the four crania appears to be on the border of meso and brachy in cranial index; orthocranial in length-auricular height index; tapeinocranial in breadth-auricular height index; and hyperchamaerrhine in nasal index.

These four skulls agree with one another in a large number of morphological characters, as will be obvious from our previous descriptions. The range of variation is small for each of the above four indices. These considerations probably point out to a familila similarity of the above four persons. Crania A and F appear to be somewhat older than B and C, since the sutures at the pterion appear to have closed in both the former skulls. This familial relationship is also obvious from the superimposed median sagittal craniograms of the crania A, B and C (Fig. 2)—that of skull F could not be drawn because of its fragmentary nature. The cranial capacity of skull C only could be calculated, which according to Lee-Pearson formula, appears to be 1513 cc. and is thus of the large type, according to

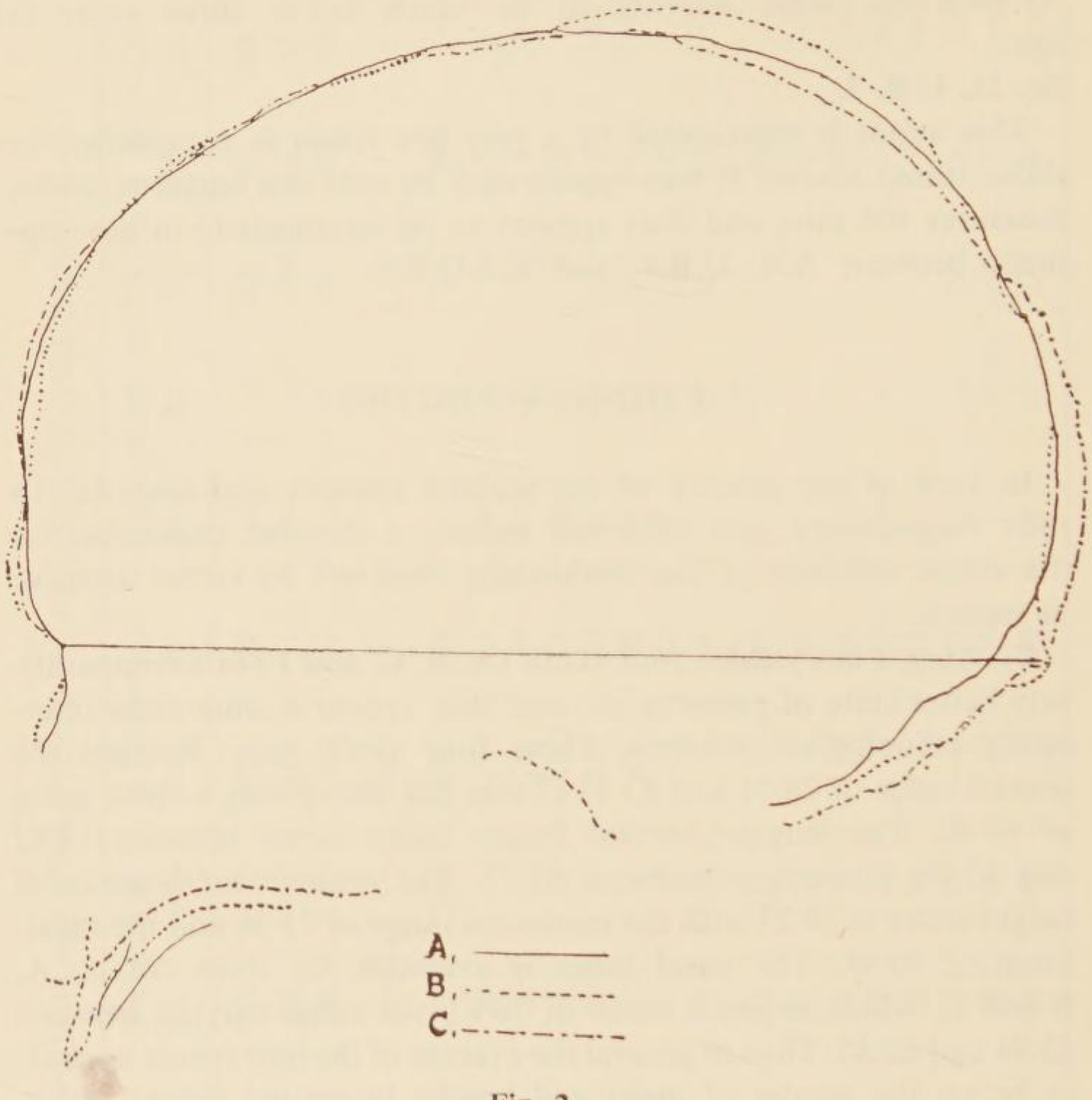

Fig. 2

Median Sagittal Craniogram of 3 Crania from Br. Meg. I.

the classification of Keith and Krogman (1932). According to Sergi it falls within the megalocephalic range.

Only two femora (Table 22) could be utilized for the determination of stature.

They are as follows :

No.	*Femur length*	*Dupertius and Hadden*	*Trotter and Gleser*	*Average*
(a)	46·8	173·8	174·1	17·40
(c)	43·4	166·2	166·2	166·2

The individual represented by the femur (a) thus appears to be above medium in stature while that of (c) is below medium.

The robustness of the skeletal parts, the prominent malars, the mandibular fragments and the highly worn out teeth also indicate a very strong physical type. The mandibular fragment (Table 21) from Br. Meg. V appears to support the prevailing type represented by the above four individuals.

The cranial characters mentioned above do neither agree with the autochthonous Australoid type of this country nor with the Indo-Caspians, and the ethnic type represented by the above four skeletons appears to be foreign in origin.

A contrary picture is however seen in the adult cranium E, probably a female, and the child cranium D, both found in association with the above four individuals in Br. Meg. I. The former skull appears to be hyperdolichocranial (64·22 ?), chamaecranial (62·30), metriocranial (77·15 ?), and the low nasal index is probably unreliable. There is marked difference in the shape of the occiput, and the post-auricular development of the skull is nearly equal to the pre-auricular, this character being also present in crania A and C. The child skull also appears to show some similarity with the skull E in respect of the occipital surface though, due to its tender age and the very deformed nature, nothing definite could be said. Crania D (child) and E appear to possess some common elements and they probably represent the autochthonous Australoid element of this country. Meadows Taylor (1865) described a very long head with prominent eyebrows and marked prognathism in a skull from Cairn E at Jewuji. He also measured the stature of the largest skeleton from Cairn A to be between 5 ft. and 5 ft. 6 in.

Hunt (1924) found 5 crania from Raigir megaliths, of which 3 showed an index of 75, one female that of 76, while the fifth showed a high brachycranial index of 90. He also estimated the stature of these cairn builders to be about 5 ft. 6 in. The association of the different head forms is thus borne out from other megaliths in this country.

How are we to account for the association of the individuals with such divergent ethnic characters in the same megalith? It is probably a case of hybridization. It appears that each megalith at Brahmagiri is a family vault and this fact can be fairly well seen in other megaliths as well. Br. Meg. IV shows remains of two adults, one of whom appears to be a slender-built person and there is also

a child cranium. Br. Meg. V also contains remains of a less robust person besides a robust one and an infant. Br. Meg. VIII also shows remains of a female besides an adult male. If these slender-built or less robust persons are females, for which there is a good deal of probability, it is seen that four out of five cist-circles appear to be family burials. Unfortunately all the 17 crania, mentioned by Wheeler, are not available to us, otherwise more would have been known.

Who are then these brachy-mesocephalic people? Besides this form of head they are also characterized by more or less medium stature, robust constitution and platyrrhine nose.

Ariens Kappers (1934) has identified the 77–79 cephalic index people to be Scytho-Iranians. This cranial index people appears to be present at Period III of Tepe Hissar. Kappers is of opinion that the great migration of these Scytho-Iranians occurred between 1000 and 2000 B.C. from the region of Ukraine. The present Iranian population also shows this index in a very high frequency and the majority of the Kurds, the Aderbeidjani and others fall within this category. The northern Persians are very much influenced by the Caucasic influence and are characterized by the brachycephalic index of 83. In this connection the human remains from Sialk (Vallois 1940) also deserve mention. Of the 39 crania excavated from the Periods I-VI at Sialk only five are mesocranial. Of these five, two are females, showing the indices of 79·0? and 74·1?, one belongs to a child, 8–10 years old, with an index of 76·0, while the two male skulls show the indices of 79·2? and 75·7. Brachycephaly is overwhelming at Period VI, where out of 18 skulls found, 15 are either brachycephalic or hyperbrachycephalic. Mesocephaly is thus poorly represented at Sialk and its brachycephaly may be responsible for the brachycephaly of Brahmagiri. This is also borne out by the very close similarity of the Brahmagiri skull B with that published by Vallois in his Plate C, fig. 5. Although the former skull belongs to a male and the latter to a female, the similarities are very much apparent in the cranial contour excepting the frontal region.

Kappers has also published a cranial index curve of the Kurgan skulls of the 10th and 11th century A.D. from Central Russia, originally published by Bogdanow. In the present megalithic context they also deserve some mention. Kappers' curve for the crania of both the sexes shows the most outstanding peak at 75 with a frequency of 22 crania, followed by another at 71 with a frequency of 19 crania

and then there are two other peaks of the equal frequency of 16 crania at 78 and 80. Out of these 188 crania from the four Russian Kurgans of Twer, Merjanen, Bolgary and Nowgorod, 80 or 42·6% appear to be mesocephalic, 61 or 26·0%are dolichocephalic and the rest are brachycephalic. Nearly the same picture is also seen in the crania from Ukraine, in the male Scythian Kurgan skulls found near Kiev and in the Kurgan skulls from Caucasus. From all these evidences Kappers concludes : "The 75 peak certainly indicates a people different from our Indo-Aryan". The latter are characterized by the 71 index cranial peak and there is little evidence of this ethnic strain at Brahmagiri.

In an earlier publication (Sarkar, 1958) the ramifications of these mesocephalic people among the present day populations of India were discussed and Brahmagiri falls within this geographical area. How far Sir Arthur Keith's famous dictum, "we find people at the dawn of history pretty as much as they are today", already proved to be true elsewhere, will also be true at Brahmagiri, only further researches on its present day inhabitants will reveal. The Brahmagiri mesocephals are probably close congeners of the 77–79 index people, so frequently seen in central and western India.

The child skull (Table 20) from Stone Axe Culture is hyperdolichocranial (69·27), orthocranial (59·50) and metriocranial (85.89) in shape and appears to be Australoid in form.

8. SUMMARY

1. Archaeological excavations at Brahmagiri have yielded 10 megaliths and a large number of urn burials and an open burial of a child about 12 years old, the latter two belonging to the Stone Axe Culture.

2. Human remains were found from 6 megaliths, Br. Meg. Nos. I, IV, V, VIII and IX, all of which are cist-circles, while pit-circle VII yielded remains of three individuals. Urn burials were represented by 5 skeletons of infants, all of whom appear to be below 3 years of age.

3. Each megalith appears to be a family vault, since remains of more than one individual were found in each.

4. 12 skulls were received for purposes of this report although the number of individuals appears to be 20 in all.

5. The crania from megaliths reveal an autochthonous Australoid type and a more or less medium statured, mesocephalic, medium-vaulted, flat-nosed type with robust constitution and powerful upper and lower jaws, probably of the Scytho-Iranian stock.

6. The single child skull from the Stone Axe Culture appears to be of the autochthonous Australoid type.

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CHAPTER SIX

The Far South

THE FAR SOUTH, here almost conterminous with the present Tamil Nadu, is very rich in megalithic monuments of various types. Like the ones in Andhra and Mysore regions, these megaliths have also yielded human skeletal remains. Here we propose to deal with four sites, *viz.*, Kunnattur, Amrithamangalam, Sanur and Adittanalur; and of them, the last-mentioned site has produced fairly good material so far as the human skeletal remains are concerned. But the full report on the excavations at Kunnattur and Amrithamangalam have not yet been published.

1. KUNNATTUR

Kunnattur is situated in the District of Chingleput in Tamil Nadu. Krishnaswami discovered on the northern slope of the Subrahmanya-swami Hill nine megaliths during the years 1956–59. The peculiarity of the above site lies in the different types of megaliths "situated very close to one another," and altogether three types have been classified.

Type I is the cairn-circle. Three megaliths of the above type were excavated of which one (no. 5) yielded some evidences of human bones. The cairn-circle was 33 feet in diameter, containing a huge terracotta sarcophagus ($6\frac{1}{2}' \times 4\frac{3}{4}'$) having twenty-one legs in three rows of seven each in an oblong pit ($13' \times 9' \times 6'$). It contained no bones but many iron implements were found outside the sarco-phagus. Three smaller legged sarcophagi of terracotta were also found outside, though within the limits of the cairn-circle itself. "No bone was found in any of them, but overlying the cairn-stones ....were found pieces of bones in a broken pot, suggesting a funeral rite after the sealing of the pit by the filling."

Type II has been called slab dolmenoid cist with a port-hole towards the west.

Type III is said "to be a new type without large circle-stones." It also contained legged terracotta sarcophagus but sealed by a capstone. One such sarcophagus within a megalith (no. 3) contained

"very meagre skeletal remains consisting of a broken bit of a radius, a fragment of a deciduous tooth of a youth."

Some human cranial and long bones were also found from another legged terracotta sarcophagus ($6\frac{1}{4}' \times 1\frac{3}{4}'$) in Megalith 9 which was "exposed to view through spoliation."

Since no charred bones have been reported it appears that the skeleton was first exposed to the elements and then the bones were collected and interred.

2. AMIRTHAMANGALAM

Amirthamangalam is an extensive site in the lateritic zone of the District Chingleput, Tamil Nadu. Banerjee found about two hundred and fifty exposed and damaged urns, all of which were "hand made, thick of coarse granular fabric and pale red colour and had rolled rims with or without additional decorations below and either pedunculated bottoms .... or heeled solid bottoms, flat at the lower end, varying in diameter from 4 in. to 11 in."

A few urns were excavated. Banerjee states as follows regarding their contents : "The skeletal material, consisting of a selection of uncalcined, disarticulated and excarnated bones, including the skull, long bones, loosened teeth and fragments of ribs, was deposited at the bottom." According to him "these burials appear to be simpler than the elaborate megalithic burials."

3. SANUR

Sanur is a megalithic site in the District of Chingleput, Tamil Nadu. Banerjee (1956) calls it "the most representative of the sites" in the district. Five megaliths were opened, of which four were dolmenoid cists and one a pit burial, with the surface indication of a large cairn-circle.

The pit burial (Megalith 5) showed "a group of skulls and bones .... placed in the central space at the very bottom". They "were not in articulation" indicating exposure or maceration prior to their disposal in the pit. Large number of animal and bird bones were found along with the human skeletons. Iron objects and pottery also accompanied them. There were at least three skeletons in this megalith, of which one was a young adult.

Megaliths 1 and 2 also showed evidences of human bones. Megalith 1 brought to light only "a few fragments of two human teeth (in one Sarcophagus)" besides pottery wares and iron objects.

Megalith 2 showed "a fairly good quantity of skeletal remains including disarticulated bones and two skulls" in two of the sarcophagi (pl. IB). Pottery and iron objects were also found.

Bose (1959) has given a preliminary report of the human remains from Sanur. He has given the following measurements of the two crania from Megalith 2 :

Skull No.	*Sex*	*Age*	*Cr. leng.*	*Cr. br.*	*Cr. index*
A	F	adult	197?	122?	61·92?
B	M	„	205?	143?	69·75?

Both the crania thus fall within the hyperdolichocranial group.

4. ADITTANALUR

The Iron age site of Adittanalur on the bank of the river Tamraparni was discovered by Jagor in 1876. Thereafter Lapicque conducted further explorations in 1903–4. Alexander Rea of the Archaeological Survey of India excavated the above site during 1899–1904 and discovered 14 skulls and post-cranial bones from jars. Thurston (1909) in his Introduction to *Castes and Tribes of Southern India* gave cranial measurements of six best skulls, but unfortunately their numbers were not given. Recently Chatterjee and Gupta (1963) have published a report on the above skeletal remains.

Chatterjee and Gupta (1963) are of opinion that the Adittanalur crania possess Veddid-Australoid and Mediterranean affinities. It was pointed out in course of a recent lecture [Popular lecture series (6. 8. 1965) Indian Museum] that the Adittanalur crania are closer to the Harappa skulls from Cemetery R–37 in respect of sub-auricular depth, relative proportion of cranial breadth and basilo-bregmatic height, and other characters than to the Vedda. A comparative study of the measurements has therefore been undertaken here between the Vedda (Osman Hill, 1941) and the Adittanalur crania, and between the latter and Harappa skulls from R–37 and Jar-burials. The latter have been included here for comparison since they are similar to Adittanalur in the method of disposal of the dead. They

show a strong cultural similarity and it has been suggested that the practice of jar-burial may be due to the same people (Sarkar, 1964).

Four cranial series (Table 29) have therefore been undertaken for comparison. They are (i) Vedda crania, measured by Osman Hill (1941) (ii) Adittanalur (Chatterjee and Gupta 1963); (iii) Skulls from Harappa Cemetery H—(a) Skulls from R–37 (Stratum II), and (b) Skulls from Jar-Burial (Stratum I), (Gupta, Dutta and Basu, 1962). The two sexes have been separately considered and the statistical constants have been taken from the above publications.

We have as yet no criteria by which similarity or dissimilarity between the means of two cranial series could be assessed, particularly when the series comprises only a few crania. As such the following method was applied. First of all the differences between the means of two series were calculated for each character. Then a mean of the differences of means were calculated for each character. They are as follows :

TABLE 26

MEANS OF THE DIFFERENCES OF MEANS (IN MM.)

Max. cranial length	— 6	Nasal height	—4
Max. cranial breadth	— 5	Nasal breadth	—2
Basilo-bregmatic height	— 1	Nasion-Prosthion line	—6
Auricular height	— 4	Basion-Prosthion line	—7
Least Frontal breadth	— 3	Nasion-Basion line	—2
Bizygomatic breadth	— 7	Maxillo-Alveolar length	—3
Sagittal arc	—11	Maxillo-Alveolar breadth	—5
Transverse arc	— 8	Palatal length	—3
Horizontal cranial circumference	—19	Palatal breadth	—4

It was on the above numerical criteria that the affinities between two cranial series were judged. There could be the following six combinations each for the two sexes and the mean has been derived out of 12 differences of means.

1. Vedda—Adittanalur
2. Vedda-Harappa (R–37)
3. Vedda-Harappa (Jar-Burial)
4. Adittanalur-Harappa (R–37)
5. Adittanalur-Harappa (Jar-Burial)
6. Harappa (R–37)—Harappa (Jar-Burial)

Taking 6 mm. as the criterion of difference for maximum cranial

length, the Adittanalur crania appear to be closer to the Harappa crania, both from R–37 and from Jar-Burial, than to the Vedda, who show the smallest cranial length of all. This is apparent in both the sexes.

In maximum cranial breadth, with 5 mm. as the criterion of difference, among males, Adittanalur appear to be nearer to the Vedda and Harappa from R–37 (2·42 mm.) whereas the difference is larger (3·45 mm.) between the former and those from Jar-Burial. There are however similarities among all the female groups but the difference between Vedda and Adittanalur is 4·72 mm.—a border-line value.

The difference between the mean values of the four groups in respect of Basio-bregmatic height is not very large and the criteria of difference has been found to be 1 mm. only. Both the Adittanalur sexes appear to be more aligned with the Harappa ones of both the sexes from R–37; but the Harappa males from Jar-Burial and Vedda females differ slightly from Adittanalur males and females by 1·50 mm. and 2·22 mm. respectively.

The relative differences between cranial breadth and basilo-bregmatic height have been shown by Pearson and Benington (1911–12) as indicative of progressive and primitive development. Progressive form shows cranial breadth greater than basilo-bregmatic height, while in the primitive cranial breadth is smaller than basilo-bregmatic height.

TABLE 27

RELATIVE MEASUREMENTS OF CRANIAL BREADTH (C B.) AND BASILO-BREGMATIC HEIGHT (BA-B-HT.)

Crania	*No.*	*C.B.* > *ba-b-ht.*	*%*	*C.B.* = *ba-b-ht.*	*C.B.* < *ba-b-ht.*	*Total %*
Vedda	63	6	9·5	3	54	90·5
Adittanalur	6	2	33·3	—	4	66·7
Harappa (R–37)	22	12	54·5	1	9	45·5
Harappa (Jar-Burial)	11	7	63·6	1	3	36·4

It will be clear from table that in respect of this character Adittanalur skulls agree in having a higher frequency (33·3%) of the progressive type than the Veddas (9·5%), who show 90·5% of primitive form. The Adittanalur crania however show higher percentage (66·7%) of the primitive form than the Harappa ones. Those from

R–37 and Jar-Burial show higher frequency of the progressive type than the primitive one. It appears that the Adittanalur series occupy an intermediate position between the Vedda and R–37, who appear to be more primitive than those from Jar-Burial.

In auricular height, on the basis of our criteria of difference of 4 mm. it is found that Adittanalur males differ from the Vedda males and are closer to the Harappa (R–37 and Jar-Burial) males, whereas among females Adittanalur skulls differ widely from the Vedda and the Jar-Burial ones. They appear to be closer to the R–37 skulls.

TABLE 28

SUB-AURICULAR DEPTH

Type	*Range (mm.)*	*Mean values (mm.)*
Harappa (R–37)	11·0 —30·0	17·30
Harappa (Jar-Burial)	11·5 —24·0	17·94
Adittanalur	12·41—16·17	14·29
Vedda	6·0 —34·0	21·7

The sub-auricular depth (basilo-bregmatic height—auricular height) is an important character, which is somewhat indicative of the cultural advancement of a people as shown by Keith (1927) in his studies of the crania from Ur and Al'Ubaid. According to him a larger sub-auricular depth is a mark of primitivity and strength.

Table 28 shows the highest sub-auricular depth of 21·7 mm. for the Vedda and the lowest of 14·29 mm. for Adittanalur. Harappa crania show an intermediate value between the above two.

In case of least frontal breadth on the basis of the criteria of difference being 3 mm., there are similarities between Adittanalur and Harappa crania for both the sexes. Between Adittanalur and Vedda crania there is a similarity in case of males though the difference is 2·42 mm. in comparison to the criteria of 3 mm. The means of the above two female groups differ by 4·10 mm.

In respect of bizygomatic breadth the single skull of each sex from Adittanalur does not allow any comment but it appears that the former possessed a much broader face than the Vedda. The higher value of the female skull than the male is noteworthy.

It has been found that the criteria of difference is 11 mm. in case of Sagittal Arc. The Adittanalur crania are closer to Harappa crania both from R–37 and Jar-Burial to the Vedda, though the latter differ

by only 11·25 mm. from Adittanalur in the case of males. The above sequence is also found in females but the difference between Vedda and Adittanalur is larger than that found in males.

The criteria of difference for transverse cranial arc is 8 mm. Similarities between the four groups of males are apparent but among females Adittanalur crania differ widely from the Vedda and those from Jar-Burial. Adittanalur thus appear to be more aligned with R–37 than with any other groups.

The criteria of difference in horizontal circumference is 19 mm. Adittanalur females agree closely with the Harappa females; Adittanalur and R–37 males show almost identical values. The Jar-Burial males, who show the highest mean of all, express some similarity with Adittanalur males because of the difference between the means falling within the criteria of difference. Both the Vedda sexes differ remarkedly from Adittanalur and the two Harappa series.

Taking 4 mm. as the criteria of difference for nasal height Adittanalur stand closer to the Harappa ones and differ widely from the Vedda, who show the smallest mean of all. It is apparent in both the sexes.

The criteria of difference for nasal breadth is 2 mm. There are some similarities between all the four groups in both the sexes, but the Adittanalur female value is derived from a single skull.

With the criteria of difference as 6 mm. in the length of the nasion-prosthion line Adittanalur females appear to be closer to R–37 than the jar-burial ones (6·67 mm.) but differ widely from the Vedda. In males however there is a close affinity between Vedda and Adittanalur and the relationship of the latter with the Harappa series is just reverse of what is seen in females.

The criteria of difference is 7 mm. for basion-prosthion line. The Vedda and Adittanalur males show nearly identical means and both differ from the two Harappa groups. Among females the two Harappa groups show border-line differences from Adittanallur, they being 7·08 mm. for R–37 and 7·75 mm. for Jar-Burial but Adittanalur and the Vedda females diverge widely.

The mean length of nasion-basion line, the criteria of difference being 2 mm. is more or less equal in Adittanalur and Vedda females, but the two male groups appear to differ widely. Unfortunately no data are available for this character for the two Harappa groups.

In respect of the facial triangles (fig. 3), which were constructed irrespective of the two sexes, Adittanalur and Vedda differ from one

another. No facial triangles of the Harappa skulls could be constructed because of the absence of the nasion-basion measurements (Gupta, et al, 1963).

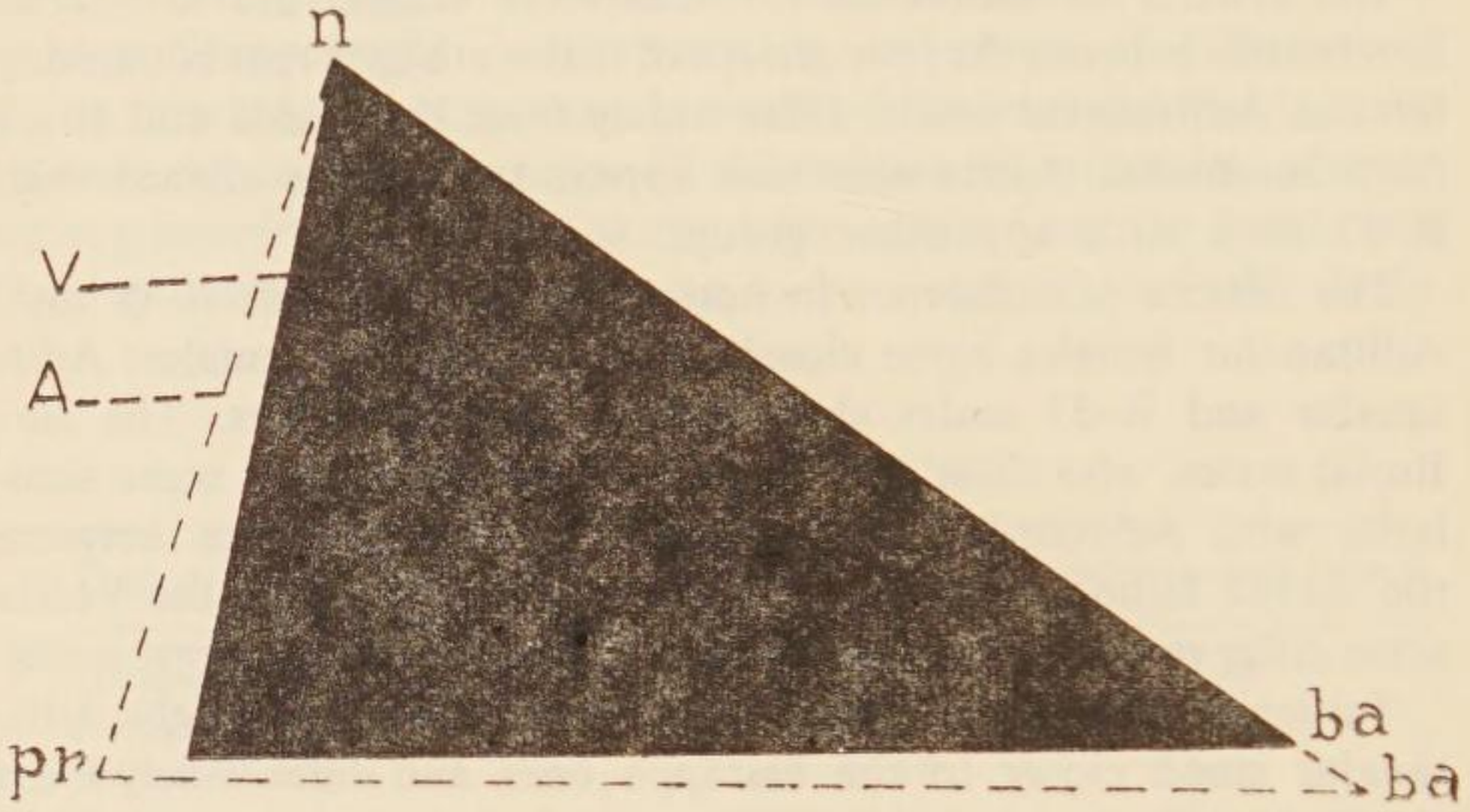

Fig. 3

It will be apparent from the above triangles (Fig. 3) that the Vedda possess on the whole a smaller face than Adittanalur. The mean values from which the triangles have been constructed are as follows :

	n-ba	*ba-pr*	*n-pr*
Adittanalur	104 mm.	103 mm.	62 mm.
Vedda	97 mm.	92 mm.	59 mm.

The Adittanalur data in case of maxillo-alveolar length are based on single skulls and as such it is difficult to assess them. However, there are some similarities between all the four groups among females but among males, except the Jar-Burial crania, none comes closer to Adittanalur. The criteria of difference is 3 mm. for this character.

In respect of maxillo-alveolar breadth Adittanalur males stand closer to the Vedda and the Jar-Burial males but differ from R–37 males, whereas the single Adittanalur female shows closer affinity with the two female Harappa groups, differing widely from the Vedda. The criteria of difference is 5 mm.

Taking 3 mm. as the criteria of difference for palatal length, Adittanalur males appear to stand closer to the two Harappa groups than to the Vedda. There are no data for the Adittanalur females but R–37 and Vedda do not differ widely.

TABLE 29

COMPARATIVE TABLE SHOWING THE STATISTICAL CONSTANTS OF VEDDA, ADITTANALUR AND HARAPPA (R-37 & JAR BURIALS) SKULLS

	VEDDA					
	MALE			*FEMALE*		
	No.	*Range*	*Average*	*No.*	*Range*	*Average*
1. Max. cranial length	44	165·0—197·0	178·56	18	156·0—183·0	169·78
2. Max. cranial breadth	44	117·0—137·0	126·36	18	116·0—132·0	123·53
3. Basilo-bregmatic-height	41	125·0—143·0	132·73	16	118·0—139·0	128·88
4. Auricular-height	32	102·0—122·0	110·77	14	97·0—119·0	108·71
5. Least frontal breadth	42	84·0— 98·0	91·48	17	80·0—102·0	88·65
6. Bizygomatic breadth	41	103·0—131·0	120·71	15	104·0—126·0	116·00
7. Sagittal arc	26	332·0—393·0	361·17	9	307·0—371·0	344·67
8. Transverse arc	25	278·0—332·0	300·84	9	278·0—307·0	287·22
9. Horizontal cranial circum.	43	460·0—530·0	492·44	17	448·0—503·0	473·76
10. Nasal height	38	31·0— 53·0	44·47	12	26·0— 50·0	41·08
11. Nasal breadth	38	20·0— 29·0	24·22	14	20·0— 25·0	22·79
12. Nasion-prosthion line	38	52·0— 70·5	60·03	15	44·5— 68·0	56·17
13. Basion-prosthion line	38	84·0—104·0	93·37	15	80·0— 94·0	87·20
14. Nasion-basion line	42	90·0—103·0	98·13	15	85·0—100·0	93·53
15. Maxillo-alveolar length	9	52·0— 67·0	57·61	4	47·0— 53·0	51·00
16. Maxillo-alveolar breadth	28	50·0— 67·0	58·34	11	31·0— 61·0	53·27
17. Palatal length	29	41·5— 54·0	50·36	13	40·0— 56·0	46·85
18. Palatal breadth	36	32·0— 64·0	44·92	15	30·0— 68·0	42·67

TABLE 29 (*contd.*)

	ADITTANALUR					
	MALE			*FEMALE*		
	No.	*Range*	*Average*	*No.*	*Range*	*Average*
1. Max. cranial length	7	171·0—195·0	185·86	5	170·0—191·0	180·70
2. Max. cranial breadth	8	125·0—136·0	130·57	4	124·0—135·0	128·25
3. Basilo-bregmatic-height	4	130·0—141·0	133·50	2	122·0—130·0	126·66
4. Auricular-height	3	115·0—119·0	117·33	2	112·0—116·0	114·25
5. Least frontal breadth	5	95·0—102·5	93·90	4	90·0— 95·0	92·75
6. Bizygomatic breadth	1	—	126·00	1	—	128·00
7. Sagittal arc	7	344·0—392·0	372·42	2	358·0—362·0	360·00
8. Transverse arc	4	302·0—310·0	305·00	3	295·0—310·0	301·00
9. Horizontal cranial circum.	5	508·0—528·0	517·80	2	491·0—506·0	498·50
10. Nasal height	2	51·0— 52·0	51·50	2	45·0— 50·0	47·50
11. Nasal breadth	2	24·0— 27·0	25·50	1	—	27·00
12. Nasion-prosthion line	3	58·0— 65·0	61·00	2	62·0— 70·0	66·00
13. Basion-prosthion line	2	86·0—101·0	93·50	2	96·0—107·0	101·50
14. Nasion-basion line	5	98·0—110·0	102·50	3	83·0—100·0	93·00
15. Maxillo-alveolar length	1	—	51·00	1	—	53·00
16. Maxillo-alveolar breadth	2	58·0— 61·5	59·75	1	—	65·00
17. Palatal length	2	45·0— 46·0	45·50	—	—	—
18. Palatal breadth	1	—	38·00	—	—	—

TABLE 29 (*contd.*)

	HARAPPA (R–37)					
	MALE			*FEMALE*		
	No.	*Range*	*Average*	*No.*	*Range*	*Average*
1.Max. cranial length	14	178·0—193·0	188·46	14	167·0—195·0	179·64
2. Max. cranial breadth	15	130·0—152·0	134·57	12	122·0—139·0	130·67
3. Basilo-bregmatic-height	13	129·0—145·0	134·04	10	122·0—137·0	127·60
4. Auricular-height	13	110·5—121·0	115·46	14	104·0—119·0	111·25
5. Least frontal breadth		90·0—102·0	95·69	16	83·0—100·0	92·47
6. Bizygomatic breadth	7	122·0—141·0	132·57	7	121·0—128·0	124·57
7. Sagittal arc	12	353·0—397·0	377·08	11	346·0—387·0	366·45
8. Transverse arc	11	294·0—322·0	302·55	12	289·0—325·0	303·92
9. Horizontal cranial circum.	12	500·0—548·0	517·33	12	483·0—528·0	502·32
10. Nasal height	13	48·0— 58·5	52·92	17	42·0— 53·0	47·97
11. Nasal breadth	12	22·0— 31·0	26·71	17	22·5— 28·5	24·82
12. Nasion-prosthion line	13	61·0— 77·0	70·38	14	60·0— 72·0	65·11
13. Basion-prosthion line	12	96·0—113·0	102·33	6	85·0—101·0	94·42
14. Nasion-basion line	Not — measured			Not — measured		
15. Maxillo-alveolar length	10	56·5— 63·0	58·65	11	48·0— 59·0	54·68
16. Maxillo-alveolar breadth	9	61·5— 70·0	65·83	11	58·0— 65·5	61·82
17. Palatal length	11	43·0— 55·0	48·18	11	40·0— 48·0	44·55
18. Palatal breadth	11	35·0— 46·0	40·00	—	—	—

TABLE 29 (*contd.*)

	HARAPPA (Jar-burial)					
	MALE			*FEMALE*		
	No.	*Range*	*Average*	*No.*	*Range*	*Average*
1. Max. cranial length	3	180·0—198·0	187·33	10	173·0—182·0	176·5
2. Max. cranial breadth	3	135·0—141·0	138·00	10	119·0—147·0	131·7
3. Basilo-bregmatic-height	2	134·0—136·0	135·00	11	117·0—139·0	126·32
4. Auricular-height	2	118·0—119·0	118·50	7	100·0—117·0	107·86
5. Least frontal breadth	2	95·0— 98·5	96·75	9	85·0—104·0	91·95
6. Bizygomatic breadth	2	131·0—136·0	133·50	4	116·0—126·0	121·50
7. Sagittal arc	2	379·0—384·0	381·50	8	344·0—371·0	355·88
8. Transverse arc	3	307·0—316·0	311·67	8	282·0—304·0	289·69
9. Horizontal cranial circum.	3	522·0—545·0	535·67	10	483·0—573·0	501·30
10. Nasal height	2	47·0— 51·0	49·00	8	40·0— 54·0	46·19
11. Nasal breadth	2	27·0	27·0	8	22·0— 28·0	24·88
12. Nasion-prosthion line	2	60·0— 71·0	65·50	6	54·0— 65·0	59·33
13. Basion-prosthion line	2	98·0—107·0	102·50	6	85·0—100·5	93·75
14. Nasion-basion line	Not — measured			Not — measured		
15. Maxillo-alveolar length	3	50·0— 56·0	54·00	4	49·0— 60·0	55·50
16. Maxillo-alveolar breadth	2	62·0— 63·0	62·50	4	63·5— 64·5	64·00
17. Palatal length	2	42·0— 47·0	44·50	4	39·0— 44·0	41·50
18. Palatal breadth	2	39·0— 41·0	40·00	1	—	35·00

In respect of palatal breadth the single male Adittanalur skull is more aligned with the two Harappa groups than with the Vedda on the criteria of difference of 4 mm.

Cranial Capacity—The cranial capacities of the Vedda skulls were both measured and estimated by Osman Hill (1941) while the cranial capacities of Adittanalur and the two Harappa series were only estimated. If the different mean capacities, as given are taken into account it would be seen that Adittanalur skulls stand closer to the crania from R–37 and the Jar-Burial (Adittanalur male—1419·37 cc and female—1287·80 cc; R–37 male—1373·15 cc and female—1285·31 cc; Jar-Burial male—1470·39 cc and female—1235·62 cc) than the Vedda (male—1280·12 cc and female—1182·43 cc) who show lower values in conformity with their smaller cranial dimensions.

From a comparison of the craniometric characters it is clear that the series, which comes closest to Adittanalur, is the one from Harappa R–37. Among males R–37 shows similarities with Adittanalur in 13 out of 17 characters while among females in 13 out of 15 characters. Next to R–37 appears the Jar-Burial series in which males show the same number of similarities as that found between R–37 and Adittanalur above, but among females 10 out of 15 characters appear to be similar.

Chatterjee and Gupta (1963) pointed out that Adittanalur crania show Veddid-Australoid and Mediterranean affinities. But it will be apparent from our previous discussion that Adittanalur males show similarities with the Vedda males in only 9 out of 18 characters and Adittanalur females appear to be closer to the Vedda females in only 3 characters out of 16 characters. It appears from the present study that Adittanalur crania are more aligned with the Harappa groups than with the Vedda. A close cultural similarity is obvious in the method of the disposal of the dead between Adittanalur and the Jar-Burial of Harappa though physically a closer affinity has been found in the present study between R–37 and Adittanalur than between Jar-burials and the latter. The difference between the two Harappa series is however very slight and the Jar-Burials show an overwhelming number of females than males (Sarkar, 1964). The close similarity between Adittanalur and Harappa may probably be due to their being derived from a common ethnic strain.

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CHAPTER SEVEN

Disposal of the Dead

1. GENERAL

BEFORE DISCUSSING THE various methods of disposal of the dead it is worth-while that certain terminologies are explained.

First of all, the term burial, which means "an act of laying a dead body in a grave" should be differentiated from the deliberate act of throwing away a dead body. Dead bodies thrown away pell-mell have been discovered from various archaeological sites like the G site at Harappa, in burial no. 1 at Tekkalakota, where three bodies have been found, and at Lothal in case of the skeleton nos. 13 and 14. It would be wrong to call these as burials, even though the adjective "fractional" is used before it. Such skeletons thrown away in neglect are in sharp contrast to the respect and sympathy observed in the case of regular burials. There may be many ceremonies associated with a burial, which were probably "communal and seasonal" (Codrington, 1930). Codrington is right in pointing out, "that the urns and pottery cists as excavated preserve for us only the final stage of the funeral ceremonies". The negligently thrown away bodies may be those of the enemies, or the victims of human sacrifice, as found by Meadows Taylor (1852) and Hunt (1924), or of those dying of epidemics and unnatural causes. In order to distinguish them from regular burials it is suggested that they be called "skeletal dumps or heaps".

Secondly, the term fractional burial should not be used simply because the full complement of the bones of a skeleton is not present. It was used in this sense by Hargreaves (1929) and Vats (1941) for incomplete skeletons at Nal and at Stratum II of Cemetery H at Harappa respectively. It is now obvious from the evidences of Nagarjunakonda and Tekkalakota that even in the case of earth burials skeletons have been exposed to the elements and after the desiccation of the body, bones have been arranged in the wrong anatomical order yet in the form of an extended burial. They are undoubtedly fractional burials since many bones of the skeletons are missing. As such, a fractional burial should imply the primary process of exposure and

desiccation before the final disposal of the dead. In this sense jar burials of adults are also fractional burials, but since they are deposited in jars there should not be any confusion with fractional earth burials. Jar burials of infants at Harappa and Brahmagiri appear to contain whole bodies contracted in the embryonic position, but at Nevasa, Tekkalakota and a few other archaeological sites in the Deccan, prior exposure of the child skeleton is possibly present. We have as yet no archaeological evidence of the whole body of adults[1] being compressed into large jars, as described by Anglade (1943) and already discussed by Sarkar (1954). On the other hand, the discovery of a skeleton covered by large storage jars by removing the base, and the use of five pots similarly to cover a skeleton at Nevasa probably point to the cultural mingling of the two methods, (1) jar burials and (2) extended earth burials, as seen in Harappa Cemetery H, Stratum I and II respectively. The previous exposure of the child skeleton is also obvious at Daimabad, where three urns were used to accommodate the bones of a child. Probably the child was somewhat grown up.

The extended earth burials and the fractional ones may be compared with the dual burial customs of the Brahui. According to Bray (1913), the Brahui first of all bury the dead in a temporary grave for about 6 to 9 months according to the nature of the soil. After the lapse of the above period the skeleton is lifted and given a final burial. Temporary burial is known as *anamat (amanat)* or trust. It is a "trust committed to the earth". In course of the final burial it is not unlikely that some bones of the body will disintegrate in the soil and some small ones left unpicked up. These, when excavated after a certain length of time are likely to be considered as a fractional burial. Thus a temporary earth burial may be present prior to the consecration of the bones in jars as well. No platforms for the exposure of the dead body have yet been unearthed in any protohistoric site in India and it is possible that they were temporarily

[1]Codrington(1930) mentions Caldwell's report of urns 11 feet in diameter from the region of Kayal which might contain whole bodies in skin and flesh and the recent finds of such burial jars by the Department of Archaeology, Kerala, support Caldwell's observations. They however contained very meagre bone remains. Two burial jars, one at Sreekaryam and the other at Trichur, have been found with the following measurements. The Sreekaryam jar measures 76 in. at the mouth, 86 in. at the bulge and 21 in. at the base with a height of 38 in. while the Trichur one measures 138 in. at the bulge and 18 in. at the mouth. (Information kindly supplied by Director of Archaeology, Kerala.)

buried as among the Brahui. The pit circles of Brahmagiri may be related to it.

Stones are much used by the Brahui in the burial. Stones are used as a pillow for the dead. On the small mound raised above the grave, long stones *(shakki)* are set up—two for males and three for females; and "the higher a man's rank, the higher should be the stones set on his grave". Then the building of temporary mosques for temporary shelter of the dead for a "last look" of the "relatives living far off" is made in the twinkling of an eye. "Set some stones in a ring, with a small arch to the west and an opening to the east, and its' done" (Bray, 1913). Dual burial procedures are obvious in the jar, cist and earth burials found from the various archaeological sites in India and the Brahui offer a striking analogy for such a practice. Their lithic association is also noteworthy.

Evidences of dual burial customs are also known from among the Toda, the Oraon, the Nicoborese and a few other Mundari-speaking peoples possessing clan ossuaries. In the present context the Brahuis concern us more than any others in view of their Dravidian language and Allchin's (1960) reference, which has been discussed in Chapter III.

Thirdly, since the discovery of joint burials at Lothal, different terms, such as "twin burial", "double burial", etc. have been used. Wheeler (1943) discovered several instances of such burials at Maiden Castle and the term "joint burial" is probably more appropriate than those mentioned above. "Twin burial" may confuse with the burial of an actual twin—a pair of infants almost simultaneously born. "Double burial" may mean that some secondary process is involved in the burial itself. But where more than two or three bodies are involved it is better to use the term collective burial as found at Byblos I (Childe, 1954), and prior to it among the Natufians (Garrod and Bates, 1937).

With the discovery of the joint burial at Lothal the practice of *Sati* rite (*Ind. Arch.—A Review*, 1958–59) was immediately thought of. Khan (1963) also found at Yeleswaram a burial, in which a male skeleton was placed upon that of a female and took much pains to discuss the above two instances of joint burials. Three instances of the Yeleswaram type of burial were found by Meadows Taylor (1852), one in a cairn at Jiwarji, and two in a cairn at Andola. All these were quietly forgotten in spite of Yazdani's (1941) noble efforts at republishing Taylor's three papers in a book form. To students

of anthropology, however, joint burials are known since Aurignacian times—the burial of an old woman and a youth from the Grimaldi caves. Two instances of joint burials, each showing skeletons of adult males and females, have also been found at Nagarjunakonda (Sarkar and Misra, 1966).

2. DIFFERENT METHODS OF DISPOSAL

Probably the earliest form of the disposal of the dead is just throwing away the body into the river or a secluded place, out of a sight and use of a general population. This form of disposal of the dead is even now practised by some aboriginals of India. Some archaeological evidence of this form of the disposal of the dead has been offered by Kenyon (1957) from Jericho excavations. A "curious gap" in the burial practices was found between the pre-pottery Neolithic people, practising floor burial, and the rock-cut tombs at the end of the fourth millenium B.C. Kenyon explains this gap as follows : "Perhaps the dead were simply exposed on the surrounding hill sides and their disposal left to natural agents". But the form which has gained more archaeological importance, is that practised by the Zoroastrians. They exposed the dead on *Dakhmas* but bodies could be exposed even without them (Jackson, 1906). Exposure of dead bodies to the elements now appears to be the primary form of disposal before all urn or cairn burials.

The primitives and the poor were content with throwing away the body for good. The later practice of collecting the bones and putting them in a permanent repository is probably due to some change in social outlook and not due to any religion. It was probably influenced by the economic status of the individual in the society. The king and the peasant cannot have the same form of burial. A society unaffected by any large economic variation is likely to show fixed customs of burial as seen at Al'Ubaid, and at Jamdat Nasr (Woolley, 1954).

The variation in the cairn burials of south India, as will be discussed presently, also indicates enormous economic differences. A cairn built of stone slabs weighing several tons at a depth of 10–12 feet under the rocky soil entails enormous cost which few people can afford. Such cairns were probably built by the deceased during his life-time.

Cast-off dead bodies are likely to be soon a nuisance in a small community not because of shortage of space but due to the foul smell of the putrid body and due to the depredations of birds and animals as well. The nuisance is likely to increase in cases of large number of deaths due to various causes. Therefore all such bodies were buried, and the nearest place the primitive people could think of was the floor of the house. The dead could thereby share the daily life of the family. It was probably at this stage that the contracted or the extended form of laying the skeleton was chosen. A contracted body requires less space and labour in digging a pit and it is likely that this form of disposal will be preferred to the extended form. Both the forms, however, appeared during the Moustero-Aurignacian period as will be obvious from the extended burial of the Mentone man and the contracted burials from the Grimaldi Caves and Mount Carmel. In India, contracted burials are present only at Langhnaj (Gujarat). All burials at Belan Bandi Palassa (Ceylon) were of the contracted form as well (Kennedy, 1965). The latter method has been applied almost universally in the case of infants. It is also known from Mount Carmel (Skhul I) and Tepe Hisser IA. At Jamdat Nasr, this form of burial was the rule in contrast to the extended form at Al'Ubaid (Woolley, 1954). Woolley is of opinion that "the attitude in which a man is buried is part of a solemn ritual dictated by religious beliefs and any change in it means a change in religion". This may not be the case always since it is known that the same people may practise different attitudes in burial practices due to different customs.

Contracted burials have also been found from cairn circles in Hyderabad (Hunt, 1924) along with three instances of extended burials. The latter appears to be associated with victims of human sacrifice, as has already been mentioned.

In India extended burials appear to be far more in number than the contracted ones. The largest number of them has come to light from the Harappan cemeteries where both the rigid, straight (Al'Ubaid type) and the sleeping attitude (Ur Commoners) types of burials have been found. The former type appears to be common both in earth burials and cairns. The Jamdat Nasr type of contracted burial occurs at Langhnaj only and at Belan Bandi Palassa in Ceylon. The embryonic position "apart from the complication of the cup" held in the hand (Woolley, 1954) as seen in the Royal Cemetery of Ur has not yet been reported in this country. This attitude is not,

however, a privilege of the kings alone since a few such burials are known at Tepe Hissar I.

The problem of megalithic burials is bewildering in India. Various nomenclatures have further increased its complexities. But the whole matter is simplified if it is looked upon as a permanent abode of the dead varying upon the power and the economic condition of the deceased or his family. In the majority of cases they contain more than one bodies which were exposed to the elements at some communal centre, wherefrom they were deposited into the family vault or cist on some particular occasion. All authorities agree that the vault was not opened after it was once sealed. The similarities in the cultural assemblage is also "suggestive of the unity of the culture" (Codrington, 1930).

Brick vaults with a brick platform have been found in Mesopotamia and they compare well with megalithic cists of India except that stone has been used in place of bricks. But the main emphasis should be directed towards the problem of labour involved in the erection of a stone cist.

Megaliths are not always family vaults as will be apparent from Site 62 at Nagarjunakonda and Hyderabad cairns. Obviously here the persons buried singly were men of position in the society. Megaliths with urns containing remains of cremation have also been reported by Meadows Taylor (1862) from Chickunhulli, Sholapur, and by Hunt (1924). The former has found large urns (3′ 2″—3′ 9″ high, and 1′ 9″—2′ 3″ in diameter) within the cist, containing "portions of partly calcined human bones, ashes and pieces of charcoal, mixed with earth". He has called them "urn-cairns".

The discovery of the urns of the above size, which are nearly similar to those found at the first stratum of Cemetery H at Harappa appears to show another instance of cultural mingling between the jar burials and the megaliths. The burial jars containing cremated human remains are almost similar to that found at the above cemetery, but instead of their being deposited in the earth as in the former they were placed in stone cists. It appears therefore that in the Deccan two groups of peoples, one practising cremation followed by jar burial, and the other megalithic, were contemporary. It may be as well that these megaliths are older than the others elsewhere in the Deccan. Neolithic association of the megaliths is already known though it has not been fully clarified. Burzahom in Kashmir—the C–14 date of Burzahom is 1850±130 B.C.— requires an early study

from various aspects (Sankalia, 1963). The burial in a sitting posture (*Ind. Arch* 1962–63) is also known from Yeleswaram (Khan, 1963). The Sholapur megaliths may, however, be used as an approximate date of the arrival of cremation in the Deccan from the Indus Valley zone. There are, however, only a few references to cremation in the Tamil classic, *Manimekalai,* of the early Christian era and the Sholapur megaliths may be quite a late one. The rarity of adult skeletons in the face of occurrence of several child skeletons at Nevasa points out that the former were probably cremated.

Megaliths are thus associated with cremated remains, family vaults with post-exposure skeletons and extended single burials, the finest example of which is from Sulur (Beck, 1930) associated with a coin of 3rd century B.C. The association of human sacrifice with megaliths has not received much attention since it was pointed out by Meadows Taylor and Hunt. The practice, however, points out to a different religious cult of the megalithic people and is not probably similar to the human sacrifice practised by the Khonds of Orissa. Among the latter it was meant to increase the fertility of the soil (Dalton, 1872) while among the megalith builders it was the continuity of the present life into the next world. Although it was the belief among both the Sumerians and the Egyptians, the latter did not practice human sacrifice up to the level of the former. Macalister (1955) points out, "If traces of human sacrifice are obscure and ambiguous in Egypt, they are yet more so in the remains of the civilization of Mesopotamia. This is surprising for people with a highly developed pantheon and a complex ritual system, and notoriously ferocious in warfare, might be expected to include human sacrifices among their regular religious practices". The analogy is almost similar to that found among the Iranians and the Scythians —the latter practising human sacrifices "in very extreme forms".

3. JAR-BURIAL

Plate XVII shows the distribution of the jar burials in India and in the Middle East. One is tempted to conclude that the custom drifted from the latter area to India. It is now almost clear that this custom has a widespread distribution in this country. It was not confined to the banks of the river Ravi alone but extended to almost all the river valleys in south India. It might have drifted to the Ganga valley as

well, for it has been found at Pandu Rajar Dhibi in the Damodar Valley, West Bengal.

Western India again shows the largest concentration of jar burials and Nevasa on the Pravara may be called "little Harappa". With its one hundred and twenty-six jar burials and five earth burials, it approaches Harappa more than any other archaeological site in western India. But Nevasa shows some change in the true custom of jar burial. It appears from the report that the skeleton from burial no. 10 was not probably exposed to the elements (p. 14) and that a large storage jar, instead of the typical burial pottery, was used to cover the body. Burials in "jars .... laid on their sides, rim to rim" is typical of Babylon (Woolley, 1954) wherefrom it was introduced into Ur.

It appears however that there is a close association of the jar burials with rivers and river valleys. The alluvial soil was easy to be dug for the burial jars. It is probable as well that the river was associated with the rituals of the burials.

The association of urns containing skeletons and those containing cremated remains is now well known (Sarkar, 1954) from the Harappa cemetery (Stratum I) and also from Boghaz-Kui. At Harappa, they occur almost side by side. One hundred and seventy-six post cremation urns have been found at the different mounds at Harappa, while out of one hundred and twenty-four jar burials found at the Cemetery H, fifty-one were without any bones (Sarkar, 1954). Here we find again a change in custom. Ghosh (1962) also found a Harappan cremation ground at Tarkhanwala-Dera in north Rajasthan. The urns were retained in both the above practices—those containing skeletons now contained the ashes of the skeleton. This change may be due to the differences in clans or tribes. Jericho has yielded good examples of such differences in burial practices, which Kenyon (1957) ascribes to different "tribal groups".

The number of jar burials, so far discovered in India, appears to be much lesser than the number of the other forms of the disposal of the dead. At Harappa the total number of post cremation urns discovered appears to be 227 (176+51) in comparison to 73 jar burials. This number appears to decrease gradually as we proceed southwards at Lothal or at Kalibangan. The number increases at the western zone, at Nevasa and Chandoli. The last increase in numbers again appears at Amirthamangalam and on the bank of the river Tamraparni at Adittanalur. In between, we have evidences

of jar burials at the Palni Hills, Sultan's Battery, Vyattri, Kalugumalai and they also appear to be associated with rivers.

In central Deccan the megalith-using population must have been a large one. Hunt estimated about a million megaliths in the old princely state of Hyderabad. Meadows Taylor's figures for Sholapur add up to about 817 cairns while at least 213 could be counted from the maps of the explored area at Brahmagiri. At the rate of at least two persons per cairn the total populations of the above three regions will be 2,000,000, 1634, and 626 respectively. The reliability of the above figures is of course doubtful but the population of the megalith builders was certainly much larger than those practising jar burials. This large number probably indicates the migration of a foreign population. The presence of the "straggling megaliths" (Banerjee, 1966) at Karachi probably points to the route of this migration. There is no evidence that the migration was by the sea and there is also equally no evidence of the presence of such megalithic structures north of Karachi and along the coast of Baluchistan. But there are cairn circles, hundreds of which were explored by Sir Aurel Stein (Sarkar, 1964). Banerjee may be right in thinking that the megalith builders were "inspired by the cairn burials of Baluchistan".

In the case of megaliths the idea only travelled. Its analogy with the brick vault chambers of Mesopotamia has already been mentioned. In central India, we know a number of tribes, particularly the Gadabas, who are experts in extracting huge limestone slabs from the hills and transporting them into their villages. Wheeler has given a description of the method of extraction (1947–48) of the limestone slabs. The megalith builders with their idea of the brick-vault chambers might have utilized such people for the construction of their cairns. Human sacrifice may have been associated with it as well. With the sheer strength of their population they must have held whole of the Deccan under their sway. The people practising jar burials was a minority before them. In course of their long sojourn from the banks of the Ravi to that of the Tamraparni they must have passed through various environments, which led to their wide scattering in the Deccan. They found in the megalith builders a strong rival. Both followed the custom of exposing the dead body to the elements, but they probably differed in the idea of life after death. The megalith builders probably believed in the continuation theory of after-life but nothing could be surmised regarding those practising jar burials. They were probably an humble folk.

4. CONCLUSION

Thus the whole process of the disposal of the dead, as revealed by archaeological data can be summarized in the following Table.

	Dead			
Stage I	Unexposed?		Exposed	Cremated
,, II	Contracted	Extended	Urn Cairn Earth	Urn for ash
,, III				Cist for urn

It is difficult to say whether contracted or extended burials were preceded by any previous exposure but an instance of it has been suggested from Daimabad. These two forms of burials are yet in vogue in India.

Earth burials and urn burials occur side by side or one upon another in the majority of sites, in western India, and they appear to be a Harappan heritage.

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CHAPTER EIGHT

Ethnic Affinities

"I do not believe that any physical anthropologist can with certainty distinguish the skeletal remains of the taller individuals of the Arab subrace of the Mediterraneans from those of a Nordic"
E.A. Hooton in *Up from the Ape*, London (1931), p. 526.

1. INTRODUCTION

A DISCUSSION REGARDING the ethnic affinities of the protohistoric inhabitants of the Deccan should obviously begin with the Dravidian-speaking peoples. As such in this chapter the term Dravidian has been used in the ethnic sense.

Who are the Dravidians? This question has been posed since a pretty long time. All efforts to bring them from outside India have not met with success. The recent efforts of Allchin (1960) to bring them from the neolithic Keltiminar phase of Khorezm have been dealt with from the cultural point of view by Sankalia (1962). Its physical aspect has, as far as the present writer's knowledge goes, not yet been discussed; in the following pages an attempt has been made to discuss this aspect of the problem.

The efforts to bring any people or culture from outside India remind first of all Sir Arthur Keith's (1936) remarks, which are not probably well known to the archaeologists. As such they are quoted here : "The bridge which links the Pathans of the North-West to the hill tribes of Travancore is still in existence. If evolution be true and if the 352 millions of people now in India are members of the same great branch of humanity, this ought to be the case. Yet, strange to say, all or nearly all, who have sought to explain the differentiation of the population of India into racial types, have sought the solution of this problem outside the Peninsula. They have never attempted to ascertain how far India has bred her own races. They have proceeded on the assumption that evolution has taken place long ago and far away, but not in the great anthropological paradise of India".

The present author had the occasion (1958) to refer to the above quotation, and to add the following remarks : "It is difficult to assume that this subcontinent was once a vacuum, and one is forced to this impression when one finds the following question in the Cambridge History of India regarding the Dravidians : 'Is there any evidence to show whence they came to India'? But could they not have evolved on Indian soil? Keith is inclined to regard the Dravidian type as having evolved from the Veddids, and this, as will be shown later on, appears to be true. The manner in which a Veddid people, dwelling on the hills, changes, on its coming down to the plains, has never been carefully looked into, although many a hill people is gradually coming down and settling on the plains".

"Such ecological changes bringing about changes in physical features have long been known among many peoples. Among the Veddas too, the coastal and inland Veddas show some amount of physical difference between them. E. Thurston (1909) found such a difference between the jungle Kanikars and the domesticated Kanikars, in which he noted that the stature increased in the latter by an average of 3·5 cm., while the nasal index decreased from 84·6 to 81·2". Similarly, there are evidences of the hyperdolichocephalic head form gradually decreasing among the Dravidian-speaking peoples.

The present writer worked out the above evidences along with other data and proposed a tentative scheme of "Evolution of the Dravidians" in the above publication.

Whether the above scheme, then proposed on the basis of anthropometric evidences, holds good in the light of protohistoric human remains will be enquired into here. But we must admit first of all the meagre number of the skeletal remains and their posthumus deformation in the soil followed by not infrequent wrong anatomical reconstruction. The latter applies not only to the crania but also to the long bones, used for the reconstruction of an individual's stature.

The question of Dravidian origins is similar to that of the Sumerian. Henry Frankfort (1954) has rightly pointed out : "The much discussed problem of the origin of the Sumerians may well turn out to be the chase of a chimera". It is probably simpler and not without justification to trace the Sumerian origins in cult, in architecture and in race to Al'Ubaid than to bring them from outside for which no evidence is yet forthcoming. Sumerian, strictly speaking, is a language and "no clearly recognized affinity to other tongues" (Frankfort, 1954) has yet been found.

2. RECENT OPINIONS

The recent opinion regarding Dravidian origins is that of Allchin (1960). It is based on archaeological evidences derived from Piklihal and those of the Russian scholars (Trofimova, 1957–58). The main evidence rests on the identity of the two Piklihal skeletons as Dravidians (Tamil), a view not shared by the present writer (above, p. 46). Allchin thinks that these neolithic (which is also doubtful, see p. 195) wanderers migrated from the Iranian plateau into the Deccan. Trofimova mentions of a Dravidoid stock in the crania of the Keltiminar culture in Central Asia. Allchin equates the above two by fitting in the Brahuis of Baluchistan into the picture. To quote Allchin : "Tolstov, however, has gone so far as to associate the Dravidian language family with the Dravidoid stock and sees in the movement of peoples of the Neolithic Keltiminar phase of Khorezm, in the last centuries of the third millenium B.C., the starting point of the movement in India".

Trofimova (1957–58) states as follows with reference to the 12 crania from Kokca–3 : "The second type with a small cranium and more pronouncedly prognathic, may be compared to the ancient Mediterranean type of the bronze age, Asia Minor and the north of India, or perhaps to the Indo-Dravidian forms".

Again with reference to the 7 crania from Dakhma at Kalaly-Gyr N. 1 (1950) he writes : "The skulls from the Dakhma are probably related to the Indo-Dravidian shapes. These may certainly be compared to the brachycephalous Dravidian groups of West India and to the brachycephalous gyhsies and to some extent to the Brahm (Brahui ?) of Beluchistan".

All the above seven skulls do not appear to show a brachycranial index according to Martin's classification. The indices of the seven skulls are 81·9, 82·1, 79·8, 78·0, 83·2, 76·8 and 77·9 with a mean of 80.0. Three out of the above seven indices are in fact brachycranial. It is probably proper to call the cranial group a meso-brachycranial one.

It will be apparent from the above two quotations that they are contradictory in respect of the Dravidian headform. On page 290 Trofimova states "of the admixture of Indo-Dravidian or Veddic types".

The last quotation means a dolichocranial headform as seen in the Veddids. The breadths of all the crania given by Trofimova in his tables are much greater than the Veddid crania, which varies

between 116 mm. and 137 mm. with a mean of 124·95 mm. Both the Mediterranean and the Veddid or Australoid elements may therefore be ruled out and the area appears to be characterized by the high frequency of meso-brachycranial forms. It will be evident from the following table where all the crania reported by Trofimova in latter's tables I, V and VI have been taken into account.

TABLE 30

CRANIAL FORMS FROM EASTERN SOVIET RUSSIA

	Kokca–3		*Kalaly-Gyr*		*Kalaly-Gyr*	*Total*
	Male	*Female*	*(Ossuary)*		*(Dakhma)*	
			Male	*Female*		
Dolichocranial	2	2	1	—	—	5 (23%)
Mesocranial	3	4	—	—	4	11 (50%)
Brachycranial	—	1	—	1	4	6 (27%)
	5	7	1	1	8	22

50% of the skulls appear to be mesocranial. This is also supported by the mean cranial index of each of the group excepting the two crania of each sex from the Kalaly-Gyr Ossuary.

The first question that strikes one is that whether a movement of the third millenium B.C. in Iran affected the contemporary peoples of Tepe Hissar I. A number of Australoid crania has been found from Tepe Hissar (Krogman, 1940) and Australoid populations are yet living in the Helmand Basin (Coon, 1952) in Afghanistan. The affinities of these Australoid peoples with those of India (Sarkar, 1954) are already well known. What the Russian scholars identifies as Dravidoid is probably similar to the Australoid. It appears to the present writer that the oftmentioned barbarians of archaeological literature are all derived from this racial stock. No body denies the similarities of the Australoids in India with those abroad, even the furthest Australian aborigines but to use a linguistic term as Dravidoid is nothing but to create confusion worse confounded. Unless any evidence of a Dravidian language is found it is useless to talk of a Dravidoid stock.

Allchin also claims that "the languages of the Indus cities (and for that matter of ancient Iran) may have belonged to the Dravidian family". This has been the opinion of many scholars but they based

their opinion on linguistic evidences. A Brahui-speaking people still inhabits the Jhalawan and the Sarawan Hills immediately above the plains of Mohenjodaro (Stein, 1934). Stein also pointed out that "only conjecturally could the view be advanced that the Brahui language was a 'relict' from the early period which preceded the conquest of a pre-Aryan, presumably Dravidian-speaking population by the Indo-Aryans of Vedic times". India was probably at one time a Dravidian-speaking country which is proved by the early influx of Dravidian words into Sanskrit. Burrow (1954) mentions that "there is a small nucleus already found in the RgVeda". Malto, Khurkh, and the Brahui are the isolated pockets of the widespread Dravidian language. It is possible that there has been some infiltration out of India into Iran and not into India from Iran or elsewhere. Dravidian languages probably had their origin and evolution in India.

Ethnic affinities between the Mundari crania of India and the Badarian crania of Egypt (Stoessiger, 1917) have long been known but no linguistic parallels have ever been drawn.

Haimendorf's (1950) correlation of the "iron-age megalith builders of South India with the bearers of the Dravidian language" has also been often discussed. He writes: "that some time in the first millenium B.C. the megalith builders were the dominant population in many parts of southern India cannot be doubted and it is difficult to imagine what tongue other than a Dravidian language they could have spoken". Subbarao (1958) has very ably answered to this speculation of Haimendorf : if the megalith builders ever spoke a Dravidian language they must have learnt it in India.

There is however no doubt about the dominant nature of the megalithic population in the Deccan as has already been discussed. Further as Srinivasan and Banerjee (1953) have appropriately pointed out that the Dravidian language is much older than the intrusive megalithic culture. The above two authors' remark are worth-while quoting : "If the megalithic folk are to be equated with the Dravidian-speaking people of the south, we have also to take into consideration the fact that at least one of the Dravidian languages, namely Tamil, had a developed literary form by the beginning of the Christian era, if not a little earlier and as such would pre-suppose a sufficiently long background through which it should have existed as a *patois*.

All this would mean that a date earlier than 300 B.C. for the megalithic folk in south India has to be looked for".

3. THE BRAHUI

The Brahuis of Sind and Baluchistan have always appeared in a discussion of Dravidian origins but no attempt for an accurate study of their physical features was made before Henry Field (1962).

In course of an anthropological reconnaissance in West Pakistan, Field (1959) took anthropometric measurements of 151 Brahuis from two localities. 65 were measured at Panjgur and 86 at Kalat. The distribution of the cephalic index according to the Keith system, which does not differ widely from Martin system is as follows :

TABLE 31

BRAHUI CEPHALIC INDEX (KEITH SYSTEM)

Ultradolichocephal	(x –70·0)	4	2·6%	
Dolichocephal	(70·1–75·0)	45	29·8%	
Mesocephal	(75·1–79·9)	45	29·8%	
Brachycephal	(80·0–84·9)	47	31·2%	
Ultrabrachycephal	(85·0–x)	10	6·6%	37·8
		151		

The Brahuis thus appear to be predominantly brachycephalic people (37·8%). That the Brahuis are a predominantly tall people will be apparent from the following table :

TABLE 32

BRAHUI STATURE (KEITH SYSTEM)

Short	(x –1599)	5	3·3%	
Medium	(160·0–169.9)	65	43·3%	
Tall	(170·0–179.9)	74	49·3%	
Very tall	(180·0– x)	6	4·0%	53·3
		150		

Field also measured 84 Baluchis, from three localities in course of his expedition who, showed much higher frequency of brachycephals (76·1%) than the Brahui, but the former are medium-statured (54·2%) in comparison to the tall stature of the Brahui. Professor William W. Howells opined as follows from his statistical analysis of the two groups.

"In general, the Baluchis are relatively heterogeneous from population to population, while the Brahuis, as far as can be told from these samples, are differentiated among themselves only in facial height. Baluchis and Brahuis are, at the same times differentiated from one another".

Finally Field concluded in the case of the Brahuis "that the racial links are toward Iran and Afghanistan rather than toward the Indus Valley and northern India".

The above brief summary of Henry Field's voluminous work will show the differences in some of the physical features between the Dravidians of south India and the Brahuis in spite of their being a Dravidian-speaking people. It is not possible here to go into the details of the somatoscopic characters, like eye colour, skin colour, etc. but in such characters as well they are also widely divergent. A language might be imposed or adopted due to a variety of circumstances as has been the case with the Veddas of Ceylon.

Allchin (1960) postulates a pastoral people with a "typical Neolithic/Chalcolithic stone blade industry" drifted from the "region of the Turkoman Steppe and the Elbruz mountain" during the last centuries of the third millenium "across Sind and Saurashtra and turning southwards gained the forests and grass lands of the Deccan plateau, then only sparsely inhabited by hunting tribes". He then states "It would follow that at least a significant substratum of the modern population can claim ancestry from the first settlers of the Neolithic period, and that, if racial characteristics are retained over long periods of time, this sub-stratum might be expected to be found superimposed upon the Veddid or Australoid elements. It would also seem to follow that in the absence of any better claimant, this stratum of settlers must have been responsible for the introduction into the Deccan of the Dravidian family of languages".

It follows thereby that the primitive tribes of India are incapable of producing even a neolithic economy although neolithic artefacts are widely known all over India. But they are capable of producing basketry which followed handmade pottery. Jhum cultivation has

been practised wherever hill slopes are available. Pottery manufacture appears to be native to the soil of India and the art developed to such an extent that burial jars having a diameter of 11 feet could be made later on.

Then the potentialities of a pastoral nomadic culture can be very well judged from the present day Todas of the Nilgiri Hills, who undoubtedly migrated from north India with their buffalo herds. Compared to them the primitive tribes of India show a sedentary rural life with potentialities of an agricultural economy and eventually to a settled social life.

The potentialities of a nomad people like the Kurds have been very ably described by Woolley (1956). His remarks are as follows :

"The problem of the Kurd tribes would undoubtedly be a hard one for any Government to solve. The first and most obvious step is to settle them on the land; but they have themselves not the least desire to give up their nomad life, whose freedom they are never tired of praising, nor are they the kind of settlers to reclaim the neglected steppes, for they are not by nature industrious, and when they work do so capriciously and without concentration; moreover to develop the riches of their country would only be giving them facilities for corruption, for the vices of civilization, as we understand it, appeal to them more strongly than do its virtues. It is indeed difficult to see what part or lot they could have in a modern State, and perhaps after all the best course to adopt with them is that of the Turk, to leave them alone so far as may be to live their lives in their own way".

Considering all the factors mentioned above it is not unjustified to consider the Dravidians as a race evolved from the autochthonous Australoids. Their first contact was perhaps with the Indo-Caspians in course of the latters' southward movement along the western region of India.

4. EARLY SKELETAL REMAINS OF THE DECCAN

The skeletal remains from the various archaeological sites discussed before have been grouped under the following three heads :

I. Earth burials showing both the contracted and extended forms have been grouped together although the contracted burials may be chronologically earlier. It may be mentioned here that the skeletons

from the rock shelters[1] Lekhania (District Mirzapur, U.P.) (Sharma, 1965) and Baghai Khor (Varma, 1965) were extended burials. As such skeletal remains from Lothal, Langhnaj, Piklihal, and Tek-kalakota have been grouped together.

II. Jar burials from Nevasa, Yeleswaram II[2] and Adittanalur. The latter has been included within the jar burials skeletons in view of the manner of the disposal of the dead.

III. Cist burials comprising skeletal remains discovered from the megaliths. As such Raigir (Hyderabad), Brahmagiri, Yeleswaram I and II, Sanur and Maski have been grouped together.

Post-cranial remains have been little studied, as such, crania alone form the main basis of the present analysis. Important observations regarding the post-cranial remains have also been taken into account wherever they are available.

Tables 33 and 34 show the cranial length, breadth, and index of the different crania of the above three groups. Table 35 shows the mean for each site and a total mean of each of the three groups. We have therby a total number of 21 crania from earth burials, 13 from jars and 39 from cists. Sexual difference has not been taken into account in view of the small number of crania but this can be found from the details of the individual's cranium given in tables 33 and 34. A summary is given in table 36 below.

The mean values of the cranial measurements for the three classes of burials are extracted from table 35 and given below.

Type of burial	Range	Mean cr. leng.	Range	Mean cr. br	Range	Mean cr. Ind
I. Earth	172-212	182·62	122-158	135·43	65·5-91·9	73·53
II Jar	168-195	179·20	124-134	132·08	65-44-79·41	71·30
III Cist	141-205	183·09	116-160	137·64	61·93-90·48	76·54

The largest difference is apparent between the crania from Jar burials (II) and those from Cist burials (III), showing the highest mean values of all for the three characters of the head. The former correspondingly shows the lowest mean values of all. The differences

[1]The Lekhania Rock-shelter I has brought to light 17 extended burials while the Bagai Khor Rock-shelter has yielded the skeleton of a young female aged 20–21 years about 152.68 cm. in stature.

[2]Yeleswaram I and II comprise the skeletal remains from 1955–56 and 1961–63 excavations respectively.

TABLE 33

MEASUREMENTS (MM.) OF CRANIA FROM EARTH AND JAR BURIALS

Cranial					*Cranial*				
SK. No.	*Sex*	*Length*	*Breadth*	*Index*	*SK. No.*	*Sex*	*Length*	*Breadth*	*Index*
		Earth Burials					*Jar Burials*		
		LANGHNAJ					ADITTANALUR		
1	?	187	124	66·3	2	F	191	125	65·44
2	M	193	132	68·4	3	M	193	128·5	66·58
3	M	197	136	69·0	4	M	189	131	69·31
4	F	190	136	71·6	5	M	186	133	71·50
5	M	187	137	73·3	7	M	186	126	67·74
6	?	177	130	73·4	9	M	171	125	73·09
11	M?	194	127	65·5	10	M	181	131	72·37
12	F?	185	132	71·4	11	M	195	134	68·71
					12	F	185	129	69·72
		LOTHAL			13	F	170	135	79·41
2	M	189	139	73·5	14	F	183	124	67·80
8	M	189	145	76·7					
9	M	194	148	76·3			NEVASA		
10	M	212	141	66·5					
11	M	180	133	73·9	1	Ch.	157	116	73·9
14	M	172	158	91·9	10	F?	185	134	72·4
17	M	180	146	81·1	28	Ch?	134	97	72·4
18	M	179	151	84·4					
		TEKKALAKOTA					YELESWARAM		
2	F	181	122	67·4	1/61	F?	168	133	79·17
5	M	185	134	72·4					
7	M	178	132	65·7					
		PIKLIHAL							
VII	M	174	131	75·29					
VII	M	173	140	80·92					

TABLE 34

MEASUREMENTS (MM.) OF CRANIA FROM CIST BURIALS

SK.		*Cranial*			*SK.*		*Cranial*		
No.	*Sex*	*Length*	*Breadth*	*Index*	*No.*	*Sex*	*Length*	*Breadth*	*Index*
		RAIGIR					MASKI		
117	M	195	124	63·59	X	?	141	117	82·98
119	M	185	140	75·68	XIXA	Ch.	150	148	98·67
120	F	178	140	78·65	XXXVIII	F	172	135	78·49
121	F	189	138	73·02	10	M	194	142	73·20
		SANUR			16A	M	172	138	80·23
A	F	197	122	61·93	18	M	181	135	74·59
B	M	205	143	69·76	21A	M	172	147	85·47
		BRAHMAGIRI			26	F	166	131	78·92
IA	M	179	140	78·21	29B	M	176	137	77·84
IB	M	182	152	83·52	44	F?	185	130	70·27
IC	M	184·5	146	79·13	69	M	177	133	75·14
IE	F	204	131	64·22	73A	M	190	160	84·21
IF	M	187	151	80·75	161	M	173	146	84·39
					173–1	M	165	136	82·42
					175	M	168	130	77·38
		YELESWARAM I					YELESWARAM II		
VBK 7	M	174	141	81·03	2/61	M	186	155	72·58
1	M	186	152	81·72	3/61	Ch.	159	130	81·76
2	M	165	147	89·09	4/61	F	173	142	82·08
3	M	168	152	90·48	1/62	M	187	136	72·73
4	F	173	128	73·99	2/62	F	172	131	76·16
12	F	170	130	76·47	3/62	F	175	132	75·43
					4/62	M	187	140	74·87
					6/62	F	178	116	65·17

TABLE 35

CRANIAL MEASUREMENTS (MM.)

Sr. No.	*Site*	*No.*	*Range*	*Mean length*	*Range*	*Mean breadth*	*Range*	*Mean index*	
1.	Langhnaj	8	177–197	188·75	124–137	131·75	65.5–73·4	69·86	EARTH BURIAL
2.	Lothal	8	172–212	186·88	133–158	145·13	66.5–91·9	78·38	
3.	Tekkalakota	3	178–185	181·33	122–134	129·33	65.7–72·4	68·50	
4.	Piklihal	2	173–174	173·50	131–140	135·50	75.29–80·92	78·11	
	Mean	21	172–212	182·62	122–158	135·43	65·5–91·9	73·57	
1.	Adittanalur	11	170–195	184·59	124–134	129·23	65·44–79·41	70·15	JAR BURIAL
2.	Nevasa	1	—	185	—	134		73·9	
3.	Yeleswaram II	1	—	168	—	133		79·17	
	Mean	13	168–195	179.20	124–134	132.08	65·44–79·41	71·30	
1.	Raigir	4	178–195	186·75	124–140	135·50	63·59–78·65	72·73	CIST BURIAL
2.	Sanur	2	197–205	201·0	122–143	132·50	61·93–69·76	65·84	
3.	Brahmagiri	5	179–204	187·30	131–152	144·00	64·22–83·52	75·17	
4.	Yeleswaram I	6	165–186	172·67	128–152	141·67	73·99–90·48	82·13	
5.	Yeleswaram II	8	159–187	177·13	116–155	135·25	65·17–82·08	75·10	
6.	Maski	14	141–194	173·71	117–160	136·93	70·27–85·47	78·97	
	Mean	38	141–205	183·09	116–160	137·64	61·93–90·48	76·54	

TABLE 36

SEX DISTRIBUTION OF CRANIA (QUERIES = SEX OMITTED)

	Site	*Male*	*Female*	*Child*	?	*Total*
I. Earth burial	Langhnaj	4	2	—	2	8
	Lothal	8	—	—	—	8
	Tekkalakota	2	1	—	—	3
	Piklihal	2	—	—	—	2
	Total	16	3	—	2	21
II. Jar burial	Nevasa	—	1	2*	—	3
	Yeleswaram II	—	1	—	—	1
	Adittanalur	7	4	—	—	11
	Total	7	6	2	—	15
III. Cist burial	Raigir	2	2	—	—	4
	Sanur	1	1	—	—	2
	Brahmagiri	4	1	—	—	5
	Yeleswaram I	4	2	—	—	6
	Yeleswaram II	4	3	1	—	8
	Maski	10	3	1*	1	15
	Total	25	12	2	1	40

* Excluded from statistical analysis.

between the mean values of the three groups will be clear from the following table:

Groups	Cranial length	Cranial breadth	Cranial index
I(E) & II(J)	3·42	3·35	2·27
I(E) & III(C)	0·47	2·21	2·97
II(J) & III(C)	3·89	5·56	5·24

The closest similarity is seen in respect of cranial length (0.47 mm.) between the crania from earth burials and those from cists. They also show the least difference (2·21 mm.) of all in cranial breadth. In cranial index however the difference of 2·97 units is slightly greater than that of 2·27 units found between earth burials and jar burials. The latter crania show the largest difference from those from cists. The cist crania also show the largest range of variation of all in comparison to the least of all variation in the case of crania from jars.

This probably means a greater homogeneity among the skulls from jars and greater heterogeneity among those from cists. The total range of variation of all the three groups is fully covered in the case of cranial breadth by the range of the cist crania alone. This is obviously due to the intrusion of the broad heads (37·50%) into the cist group. In cranial length and index the maximum ranges of the latter group are short of 7 mm. and 0·42 units respectively from the total range of variation for all the three groups. The former correspondingly show the lowest mean values of all.

The jar burial people appear to possess smaller headform than the other two groups. The cranial index (71·30) though falls withi the dolichocranial range is nearer to the hyperdolichocranial range. This headform occurs in the highest frequency (46·67%) (Table 37) of all among the three groups. There are no brachycephals, and measocephaly appears to be the least of all (13·33%).

TABLE 37

FREQUENCY OF HEAD FORMS

		I *Earth burial*	II *Jar burial*	III *Cist burial*
Hyperdolichocranial		7	7	5
	%	33.33	46.67	12.50
Dolichocranial		7	6	8
	%	33.33	40.00	20.00
Mesocranial		3	2	12
	%	14.29	13.33	30.00
Brachycranial		3	—	11
	%	14.29	—	27.50
Hyperbrachycranial		1	—	4
	%	4.76	—	10.00

As already shown the differences between (I) and (III) are small. The two groups are almost similar in cranial length. Differences however occur in respect of cranial breadth and index. This is also supported by the percentages of the different head-forms (Table 37). Both the groups show all the five head-forms. The difference lies in the group III showing more of the meso-brachy cranial than those of group I. The source of the brachycranials in the latter is Lothal.

The skeletal remains from Lothal are a landmark in the ethnic history of India. Its brachycranials might help us to assign a probable date and the route of their entry into this country. Lothal is now recognized to be contemporary with Harappa and C–14 dates ascribe them to 2650±145 B.C. (Sankalia, 1965). Brachycranialy appears to

be meagrely represented in the Indus valley though we have to recognize it in the skeletal remains found at the G site at Harappa (Sarkar, 1964). It is absent at Langhnaj, at Nevasa and at Chandoli. As far as our present knowledge goes it appears again in a south-easterly direction at Brahmagiri, Maski and Yeleswaram. These sites belong to the megalithic period which is much posterior to Lothal. The latter site has not exposed any megalithic structure by which the two brachycranials— one from Lothal and the other from Brahmagiri, Maski, Yeleswaram could be associated. The time sequence is also very long, about 2500 years, if Brahmagiri is assigned a date of 200 B.C. (Wheeler, 1947–48). It is certain however that the megalithic complex did not gain a strong foothold until about the above date. The skeletons from G site at Harappa probably points to the brachycephalic hordes, who from time to time invaded the then wealthy cities. Both Brahmagiri and Lothal show some association with the Sialk brachycephals. And it is through this association that their relationship with the megaliths may be explained. As already mentioned (p. 187) the people came with the idea of megaliths. With their numerical strength and superior culture they utilized the local expert Australoid stone-cutters to build their tombs. Unfortunately only a few habitation site belonging to the megalith builders have been found.

Now to our main point of enquiry. How far the evidences of prehistoric skeletons bear out the evolution of the Dravidians from the Veddids or the Australoids? Unfortunately we have no prehistoric or proto-historic skeletal remains which can be called Dravidian so that a direct comparison could be made.

The Tekkalakota human remains may however be compared with the physical measurements of the Boyas (Thurston, 1909), who can be called Dravidian in view of their language and habitat. Thurston measured 165 Boyas from three different localities and 2 Boya wrestlers. Their measurements are given below.

A comparison of the physical measurements of the Boyas given below with those of the Tekkalakota crania given in Table 12 (p. 48) shows some points of similarity. The mean head length (181·7 mm) agrees remarkably well with the Tekkalakota mean of 181·3 mm. but the mean head breadth differs widely— 142·3 mm for the living sample compared with 129·3 mm. for the crania. The low mean of of 129·3 mm. is however due to the inclusion of the female skull otherwise the mean of the two male crania comes to 133 mm. The

TABLE 38

PHYSICAL MEASUREMENTS (MM.) OF THE BOYAS

Character	*Range*	*Mean*	*I Wrestler*	*II Wrestler*
Stature	1519–1766	1638·7	1632	1930
Head length	168– 200	181·7	—	—
Head breadth	130– 152	142·3	—	—
Head index	70·5–89·2	78·5	—	—
Nasal index	65·2–93·0	77·3	—	—
Shoulder	—	—	418	428
Chest	—	—	840	820
Upper Arm (flexed)	—	—	280	290
Thigh	—	—	470	750

higher mean cranial breadth of the Boyas has also caused the corresponding change in the large mean cephalic index of the Boyas (78·5) in comparison 73·3 for the two male crania from Tekkalakota. In nasal index Thurston found a very wide range from leptorrhiny to platyrrhiny which is also obvious in the Tekkalakota crania. Tekkalakota has been dated to 1545 B.C. As such the skeletal remains are about 3500 years old and some changes in the present day Boya population during this long period are not unlikely.

Malhotra has found a "mediterranean-proto-Australoid complex" in the human remains from Tekkalakota. In the present state of our knowledge the term "Proto-Austaloid" is a misnomer. The present writer had the occasion to draw attention of the anthropologists to this fact more than once. Then, the term Mediterranean has often been very loosely used. Sir Arthur Keith (1931) pointed it out long ago in course of his review of Sir John Marshall's Mohenjodaro. He wrote:

"Here I prefer to use different terms for human races from those employed by . . . . ; they apply to the people here immured the names, 'Mediterranean' and 'Proto-Australoid'—terms which are now used so loosely by anthropologists that they have lost all precise significance. 'Mediterranean' has come to be applied to peoples so different as the natives of Spain, Arabia and India, and 'Proto-Australoid' to any long headed man with stout supraorbital ridges".

Then the close affinity between the Mediterraneans and the Dravidian is already well known. Haddon (1924) pointed out, "Apart from the dark colour of the skin there are many points of resemblance between the Dravidian and Mediterranean peoples which point

to an ancient connection between the two, perhaps due to a common origin". As such what Malhotra calls a "mediterranean-proto-Australoid complex" is essentially a Dravidian-Australoid complex. Mediterranean affinities have been extensively found among many living populations of India. To the present writer it appears to be the variants of the basic Australoid population of India. Hybridization has however brought in complexities in some of them.

A Dravidian-Australoid complex may also arise out of hybridization but at Tekkalakota during 1545 B.C. there were probably lesser chances of hybridization, than now. Environmental changes, such as change of habitat, occupation, etc. were also effective in bringing changes of stature and body weight. That the Australoid population passed through various vicissitudes will be apparent from the finds of their skeletal remains from the Indus Valley to Aditannalur. And that the Dravidians could evolve out of them is apparent from the ancient skeletal remains.

It is worth-while discussing last of all how far the Australo-Dravidian ethnic strain was capable of building up a culture as represented at the various archaeological excavations. First of all the above peoples were not living in isolation like the present day Bushmen of the Kalahari desert or the Australian aborigines. Since the middle of the second millenium B.C., waves after waves of immigrants have sought refuge in this country and this contact has enriched them. The martial nature of the Boyas has been very well described by Thurston. The uprising of the Male of the Rajmahal Hills, the Khond rebellion, the Santal rebellion, etc. are well known in anthropological history of India.

The Nigerian Kingdom of West Africa, which also exported Negro slaves to America, is a product of Negro culture. "The Manchu rulers of China were by blood a rude Palaeo-asiatic tribe—a racial family with members who remained primitive herdsmen" (Benedict, 1959). It is no wonder, therefore, for the Australo-Dravidians building up a culture as revealed at the various archaeological excavations.

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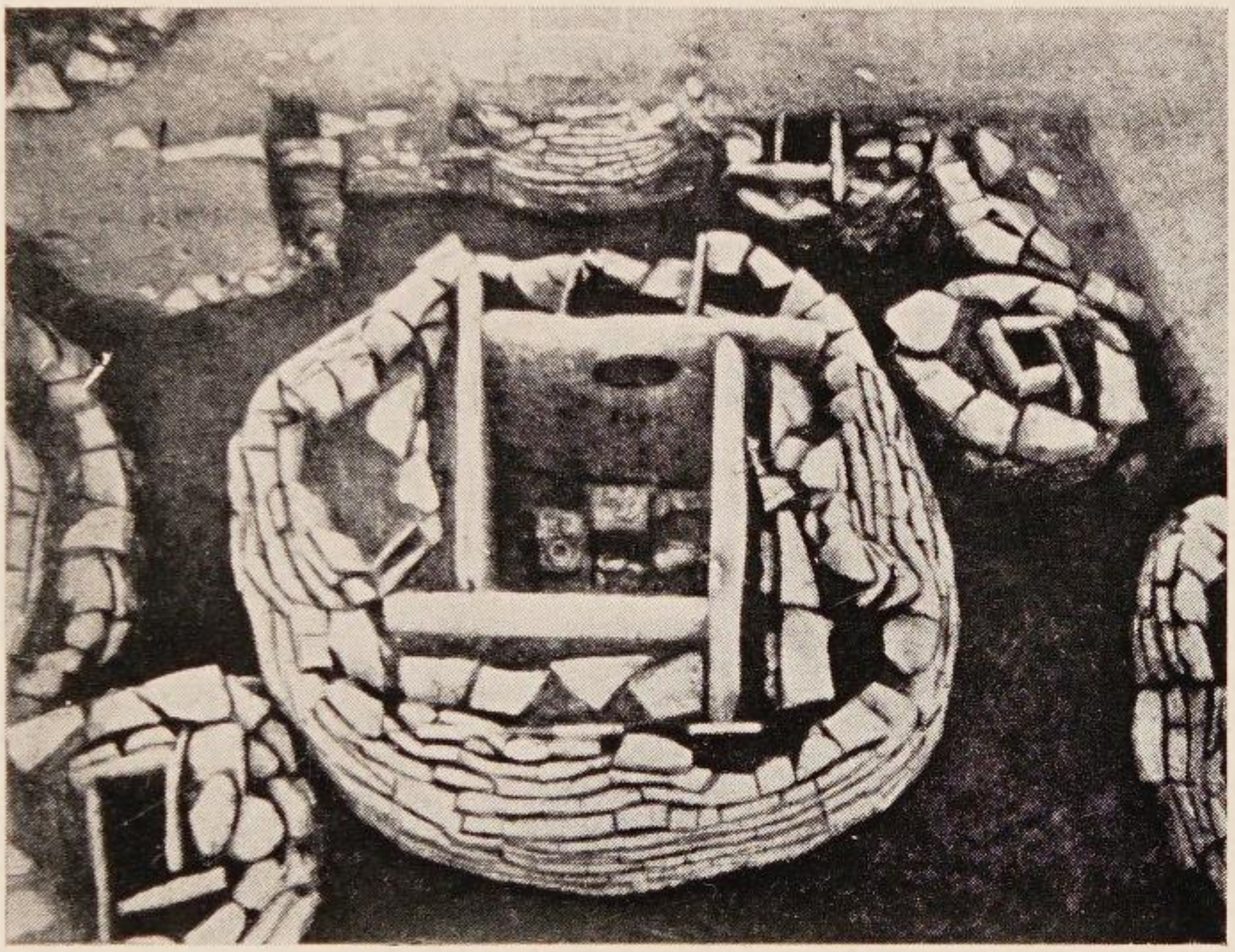
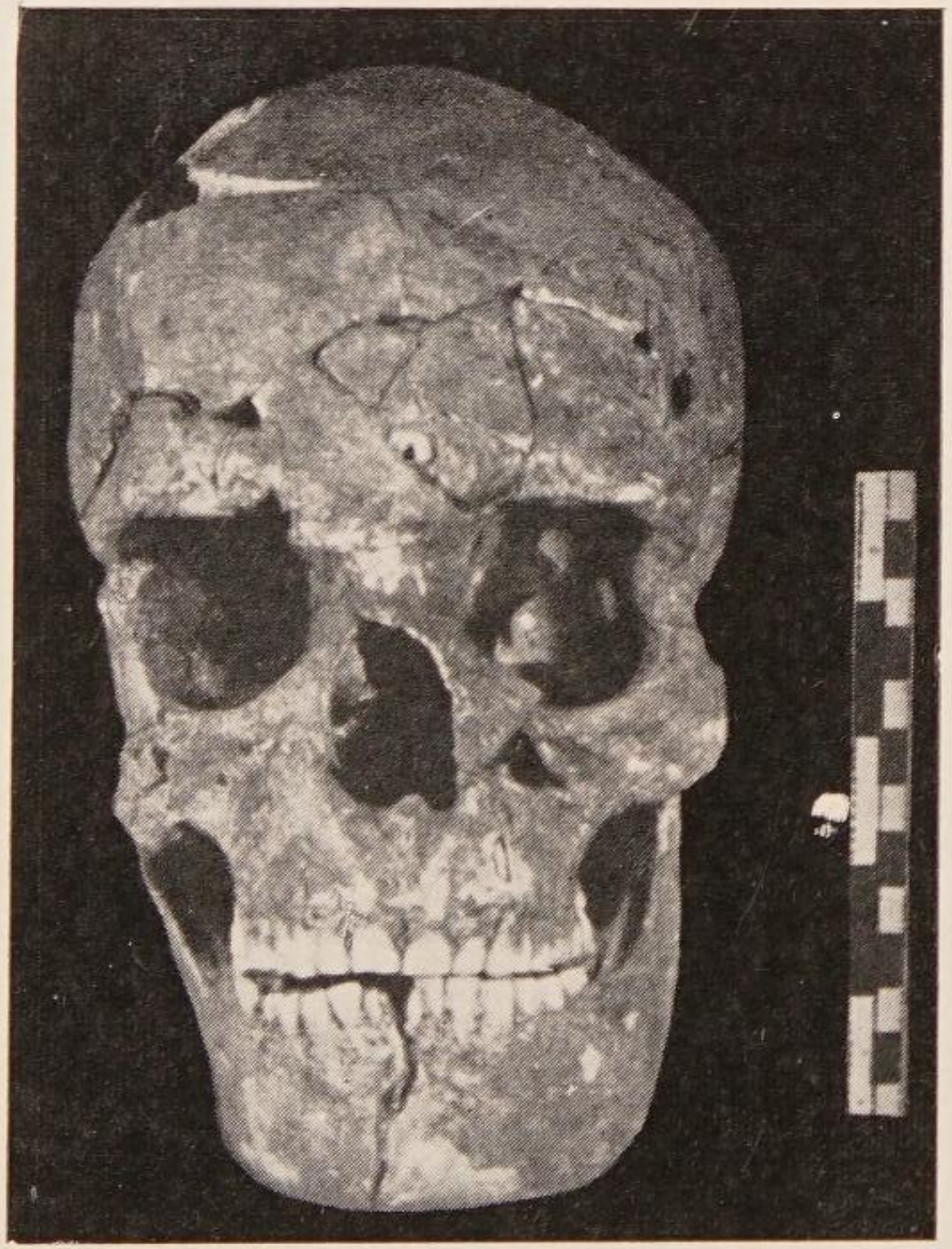


A

B

A, *Brahmagiri : Megalith X, and* B, *Sanur : excavated sarcophagi*



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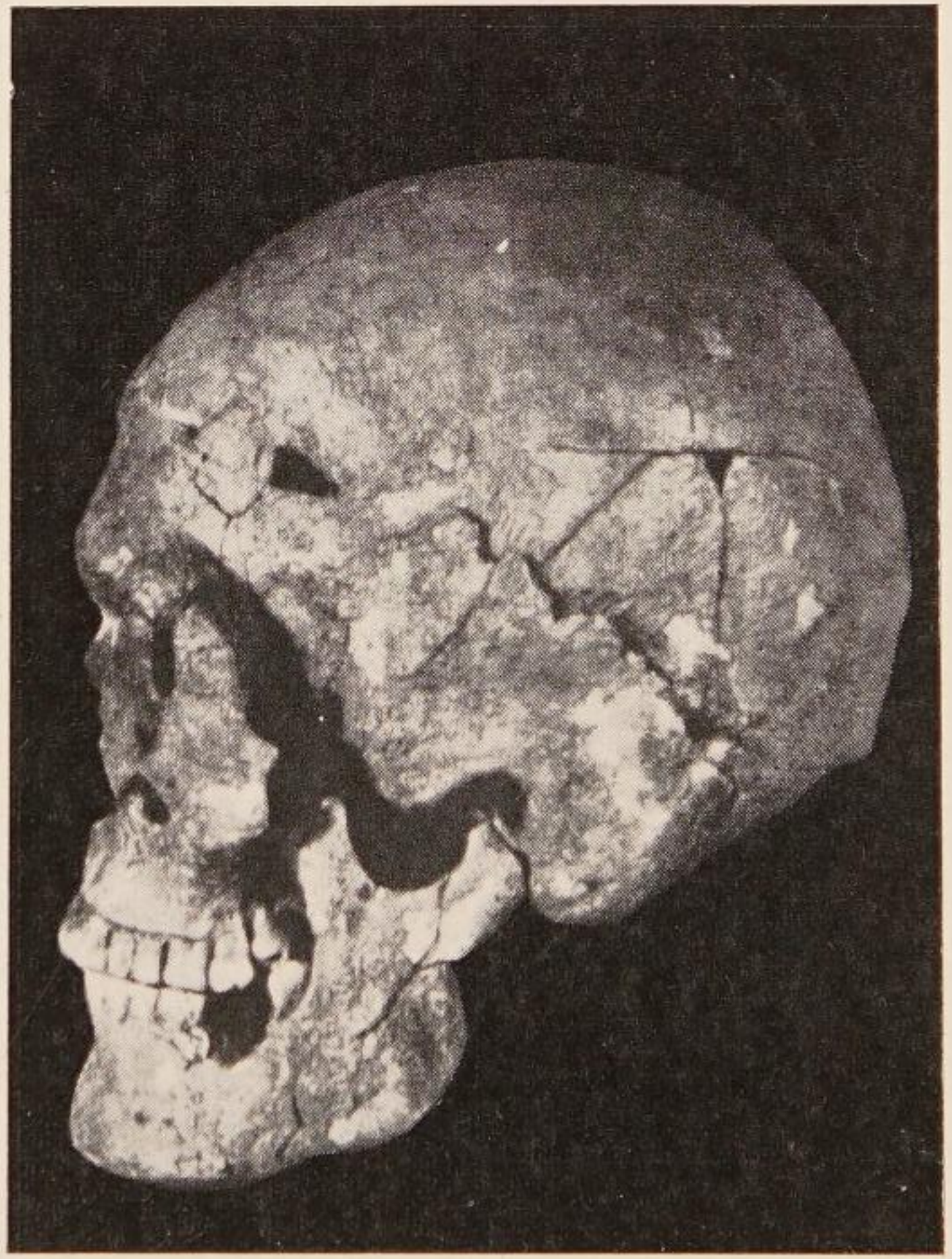
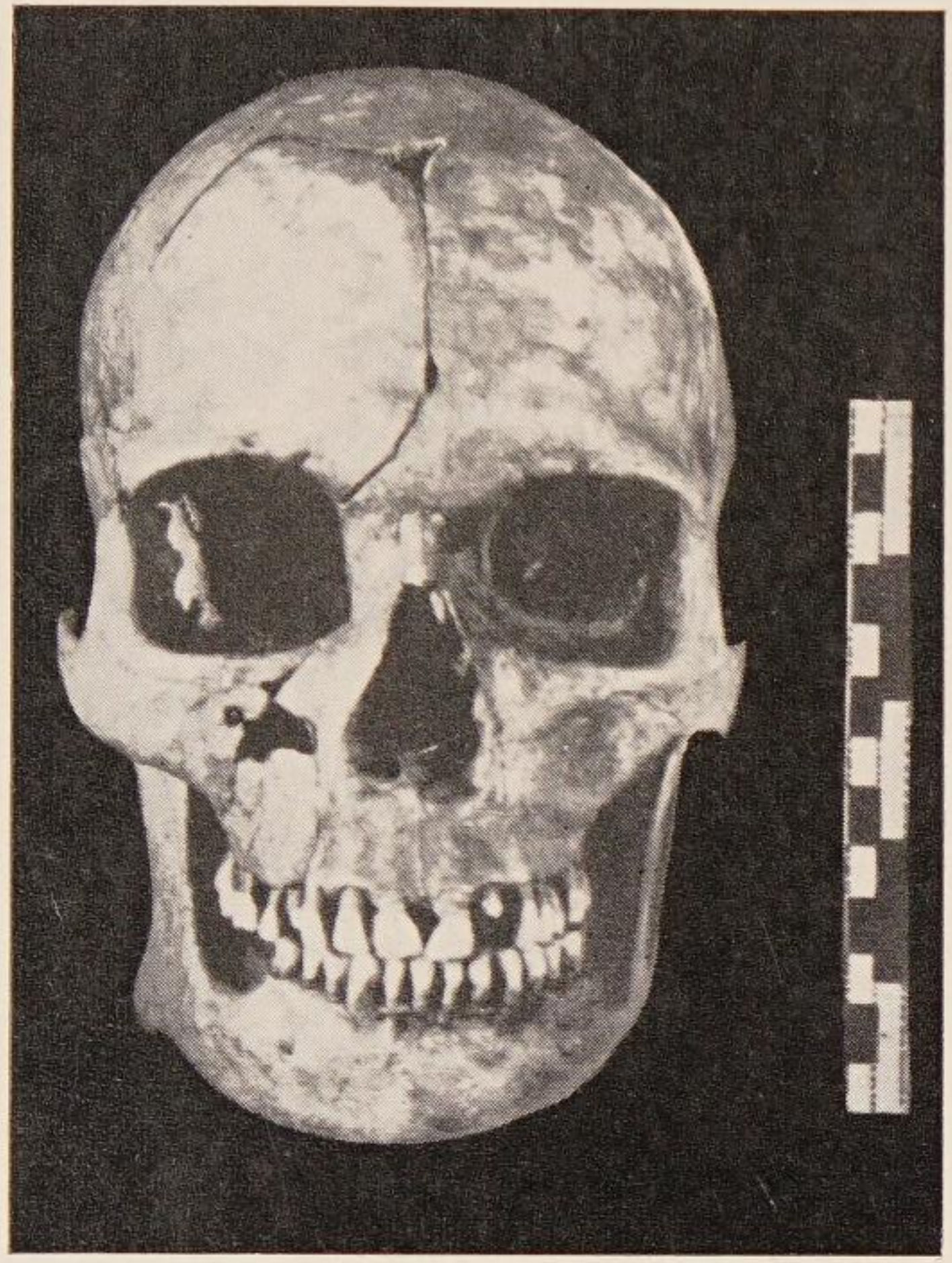


B

Piklihal : Skull C from Site VIII



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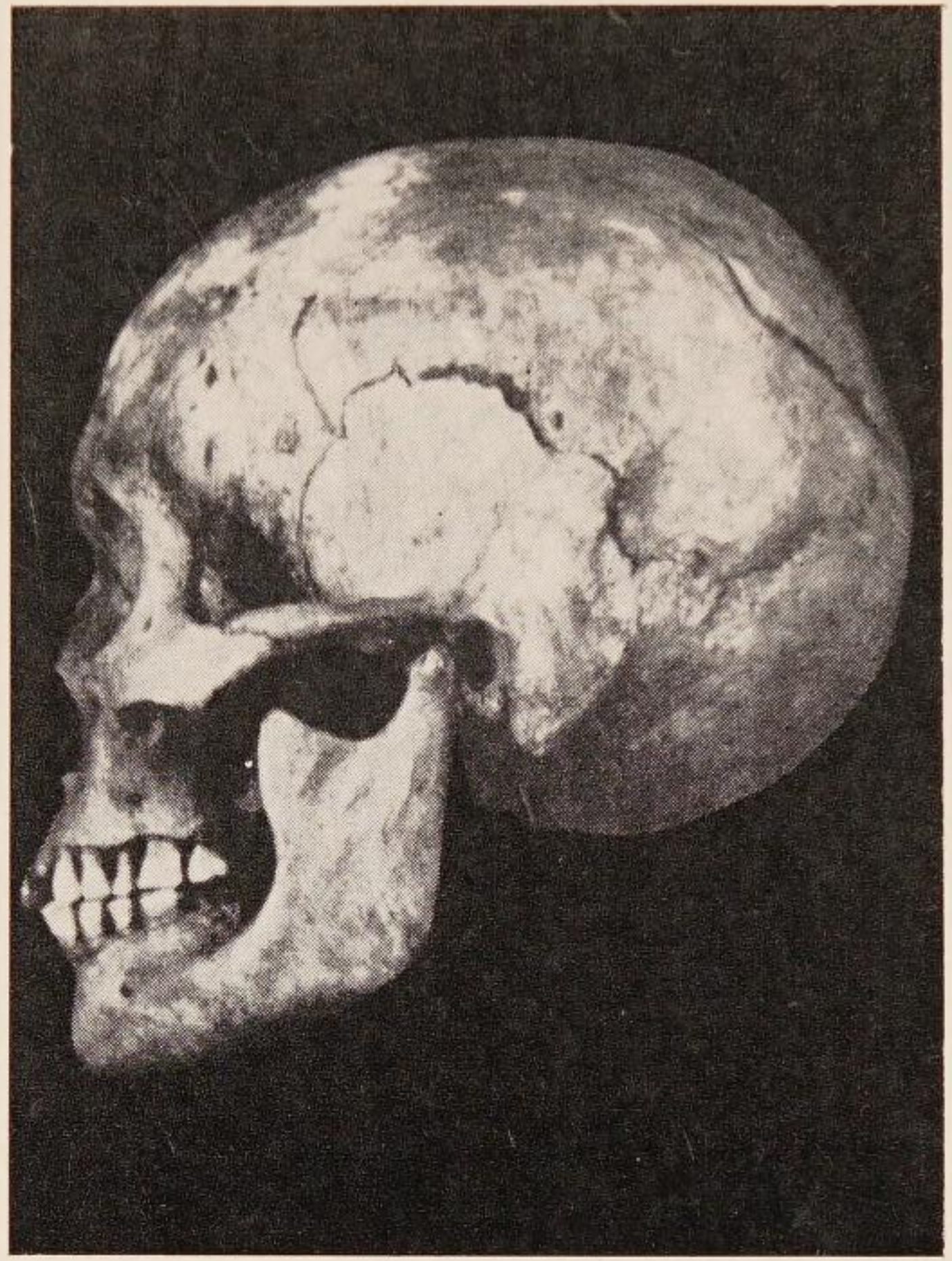


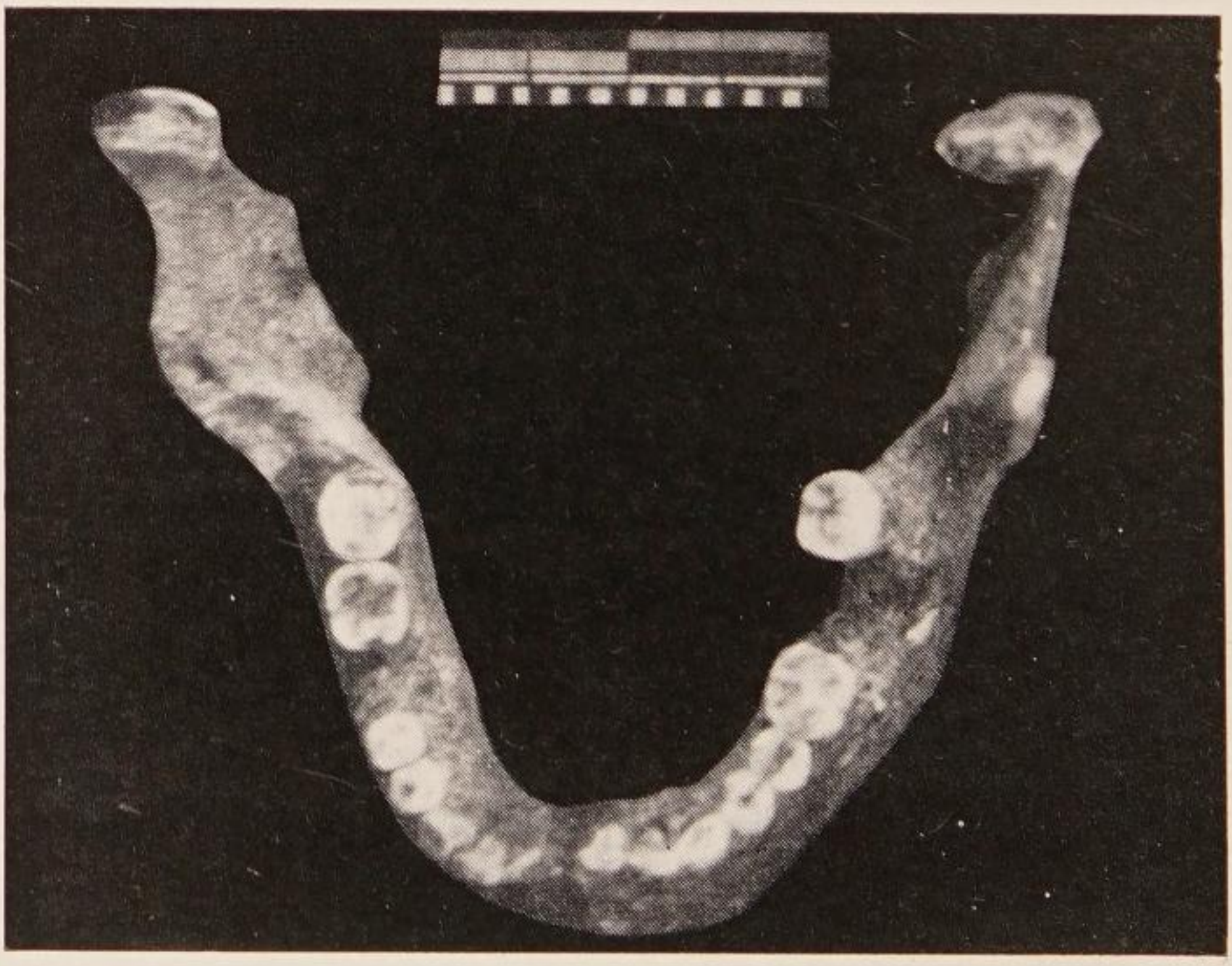
B

Plate III

Piklihal : Skull A from Site VII

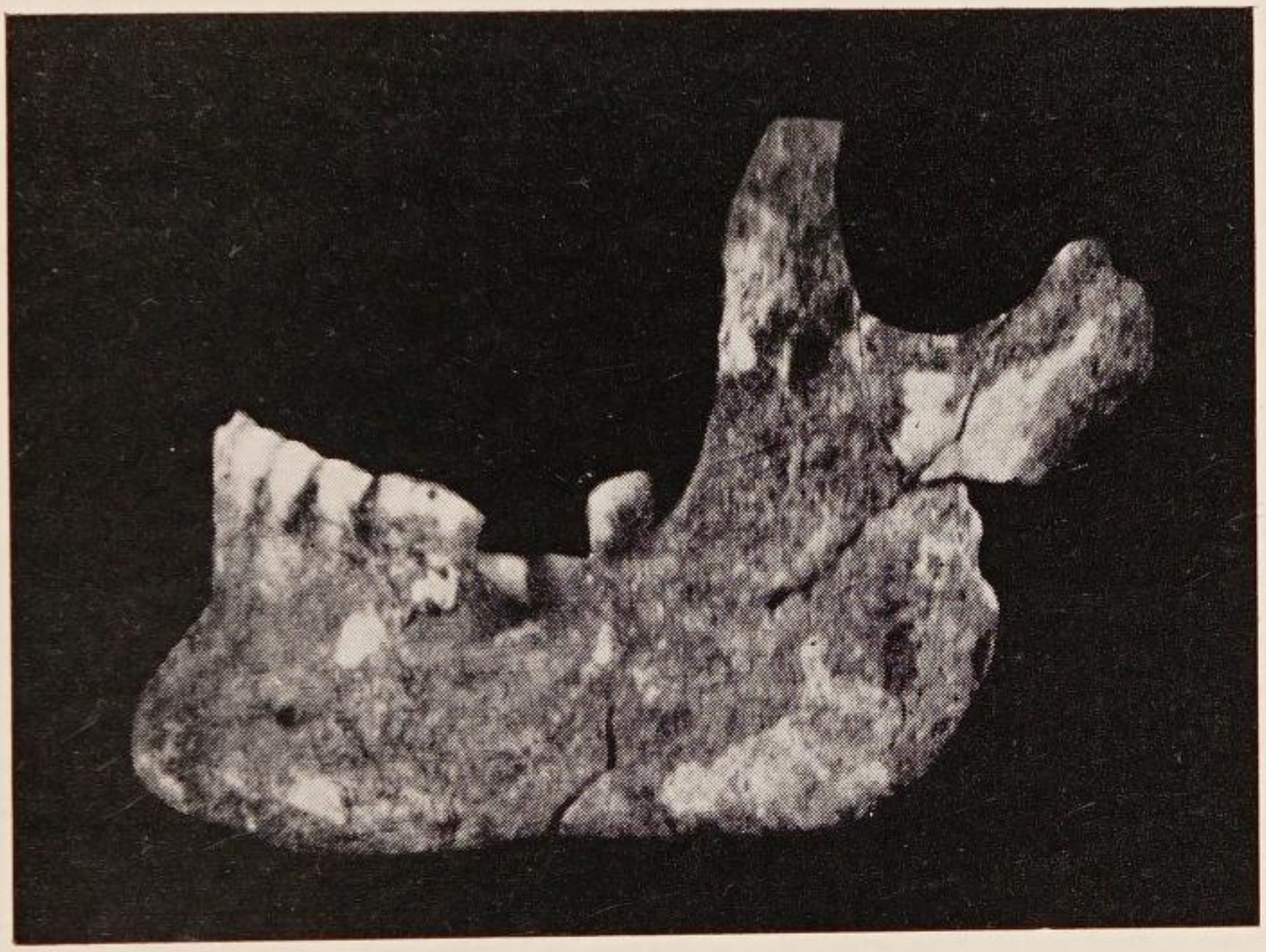
Plate IV

A



B

Piklihal : Skull C from Site VIII



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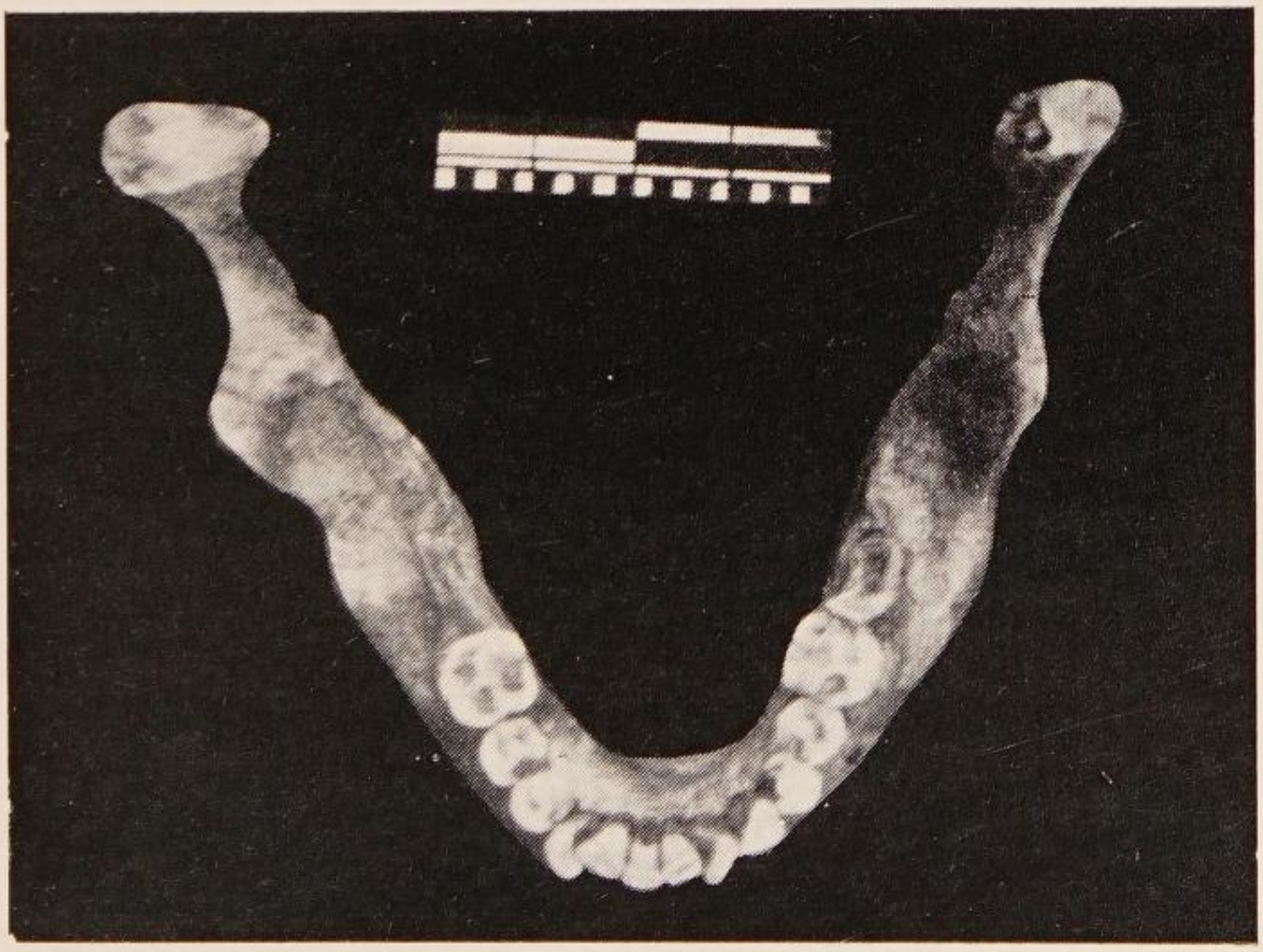
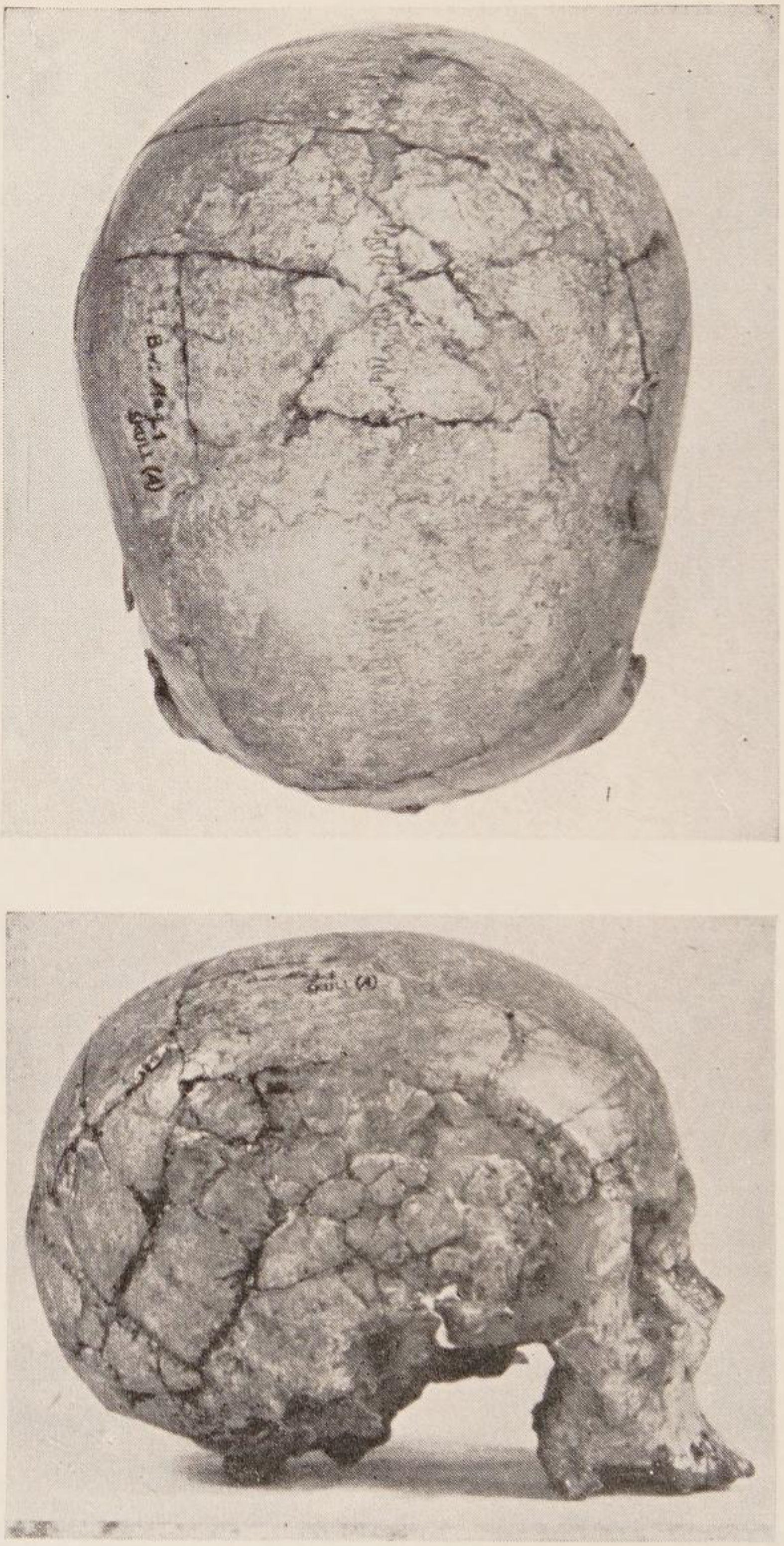


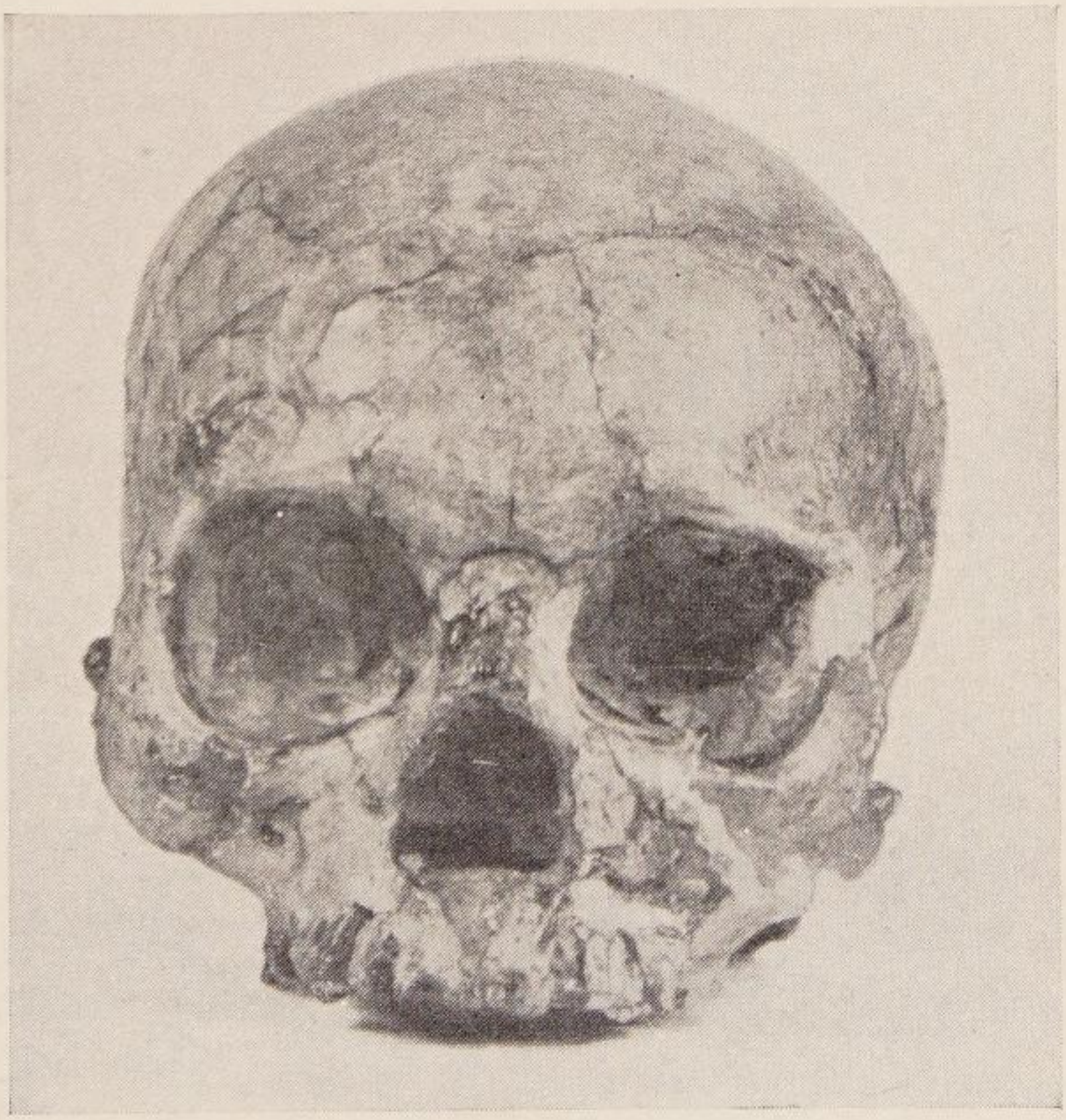
B

Piklihal : Skull A from Site VII

Plate VI



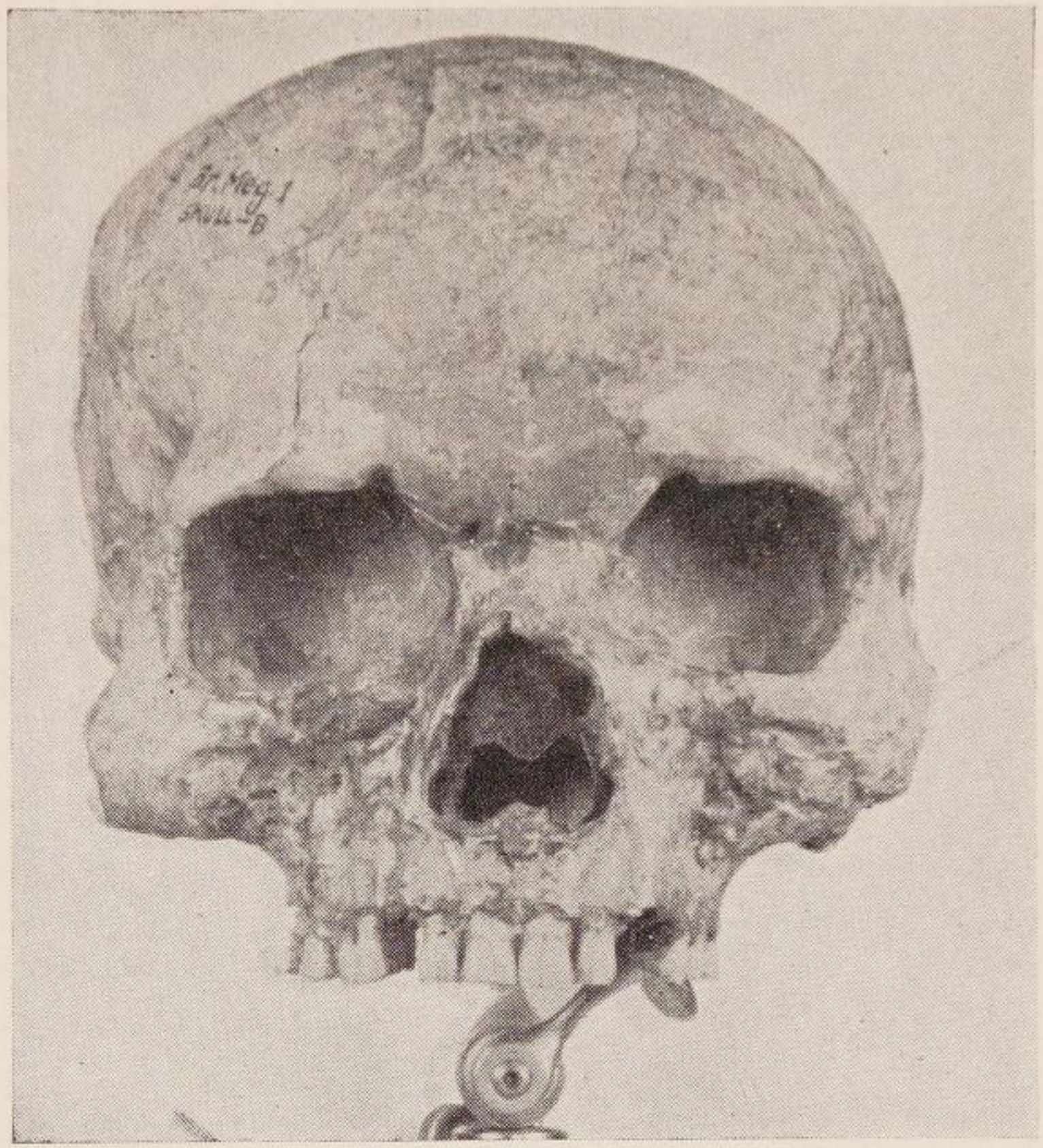
Brahmagiri : Megalith 1, Skull A



Brahmagiri : Megalith 1, Skull A

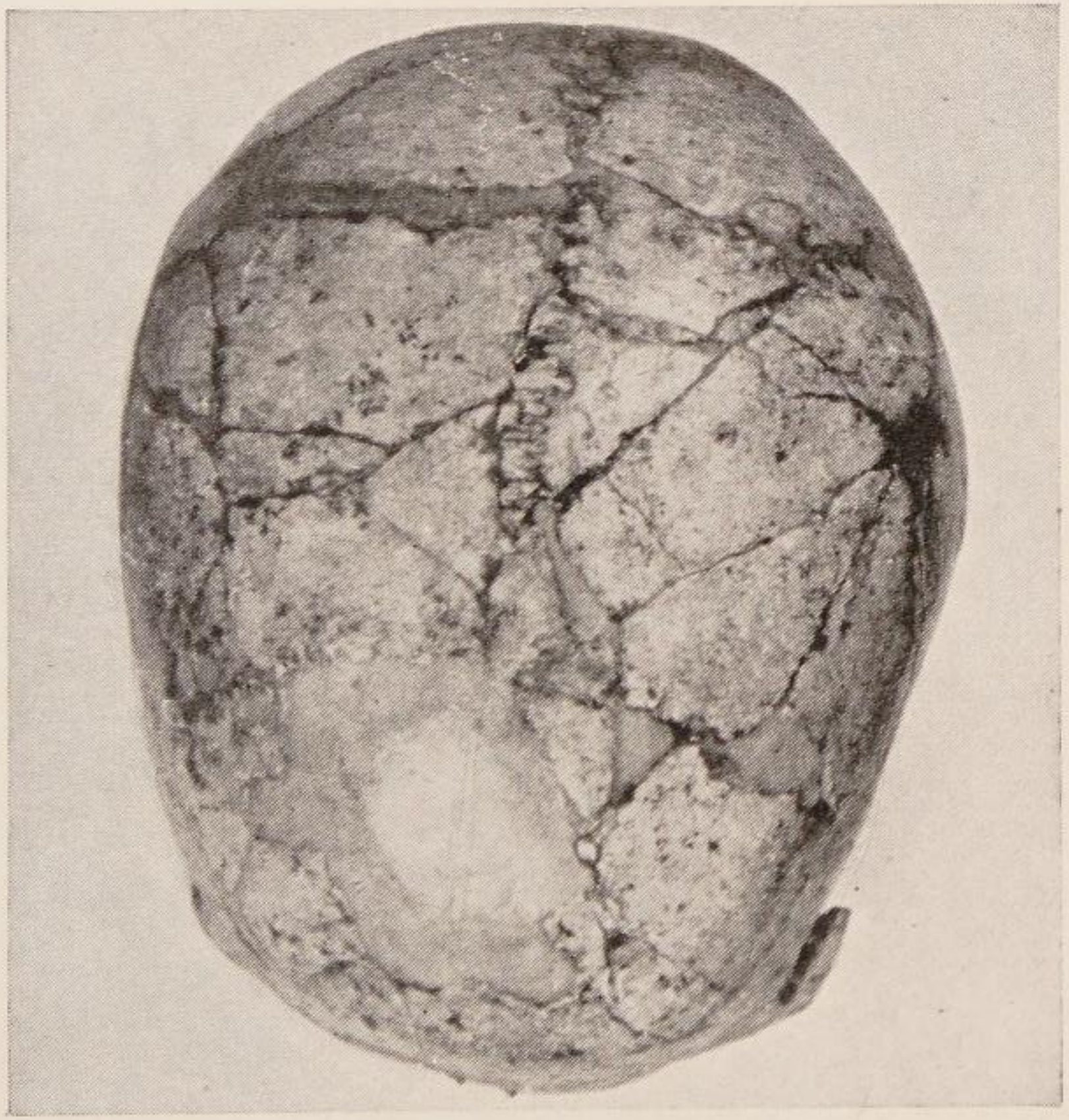
Plate VIII

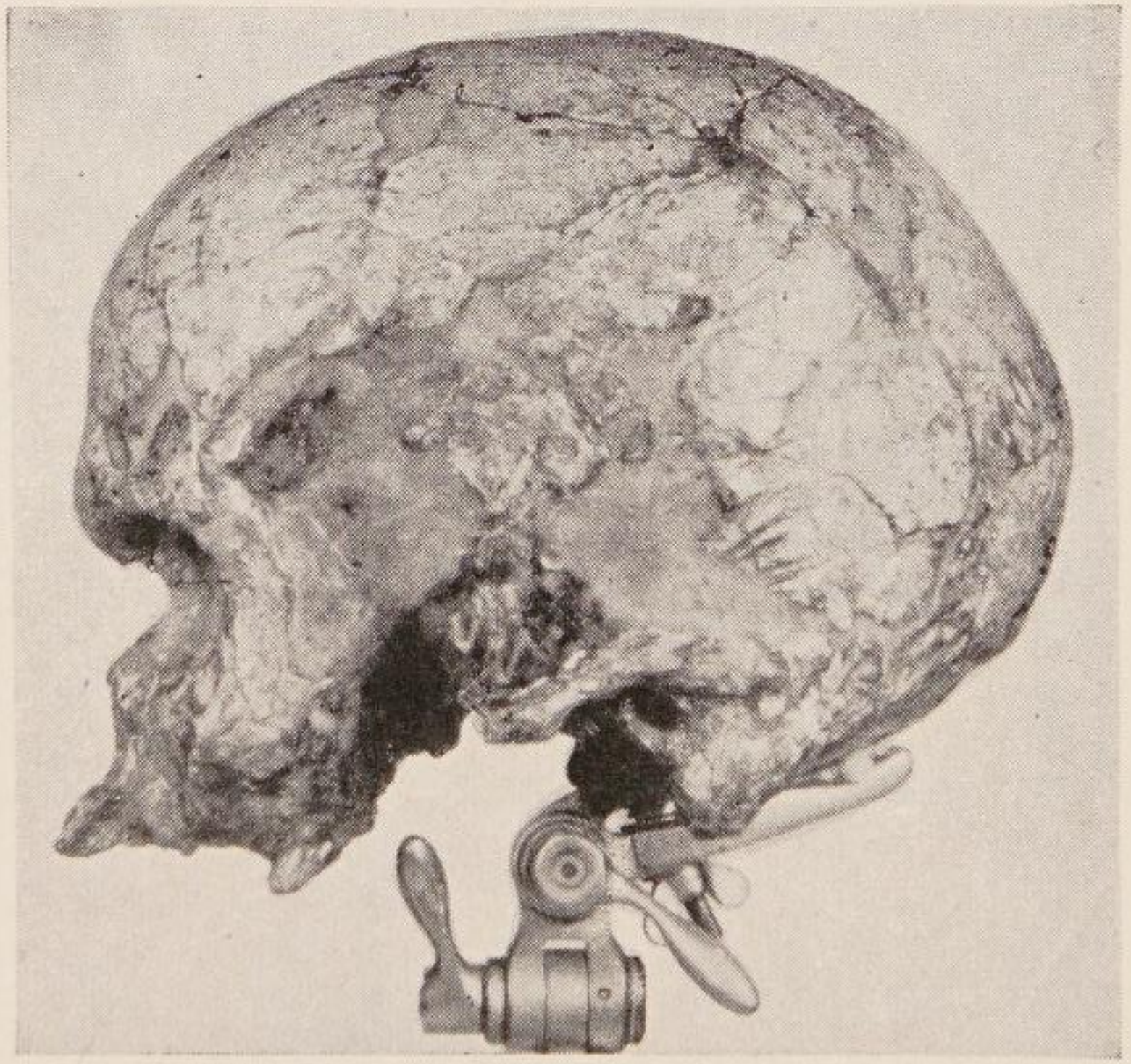
Brahmagiri : Megalith I, Skull B



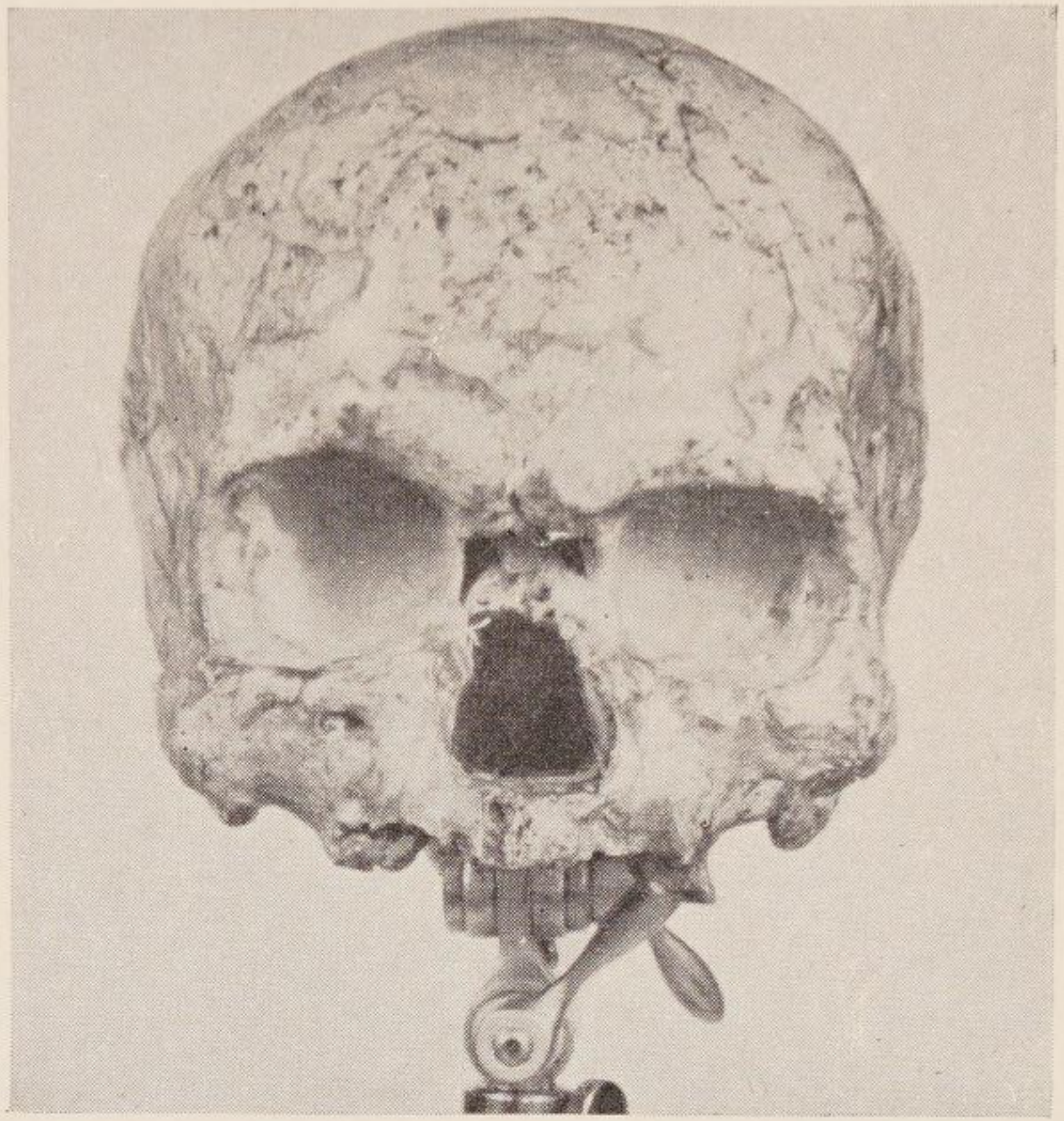
*Brahmagiri : **Megalith 1, Skull B***

Plate IX





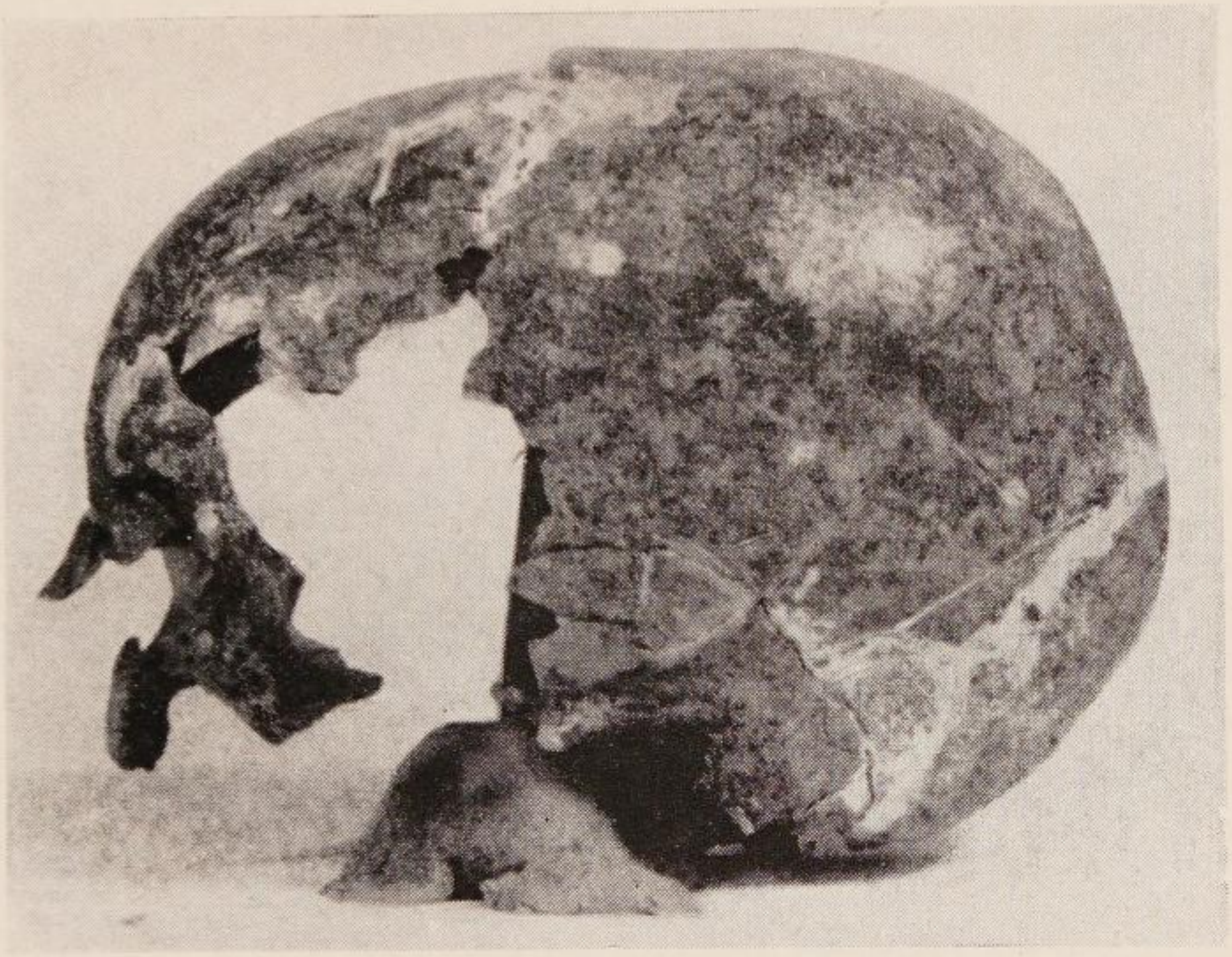
Brahmagiri: Megalith 1, Skull G

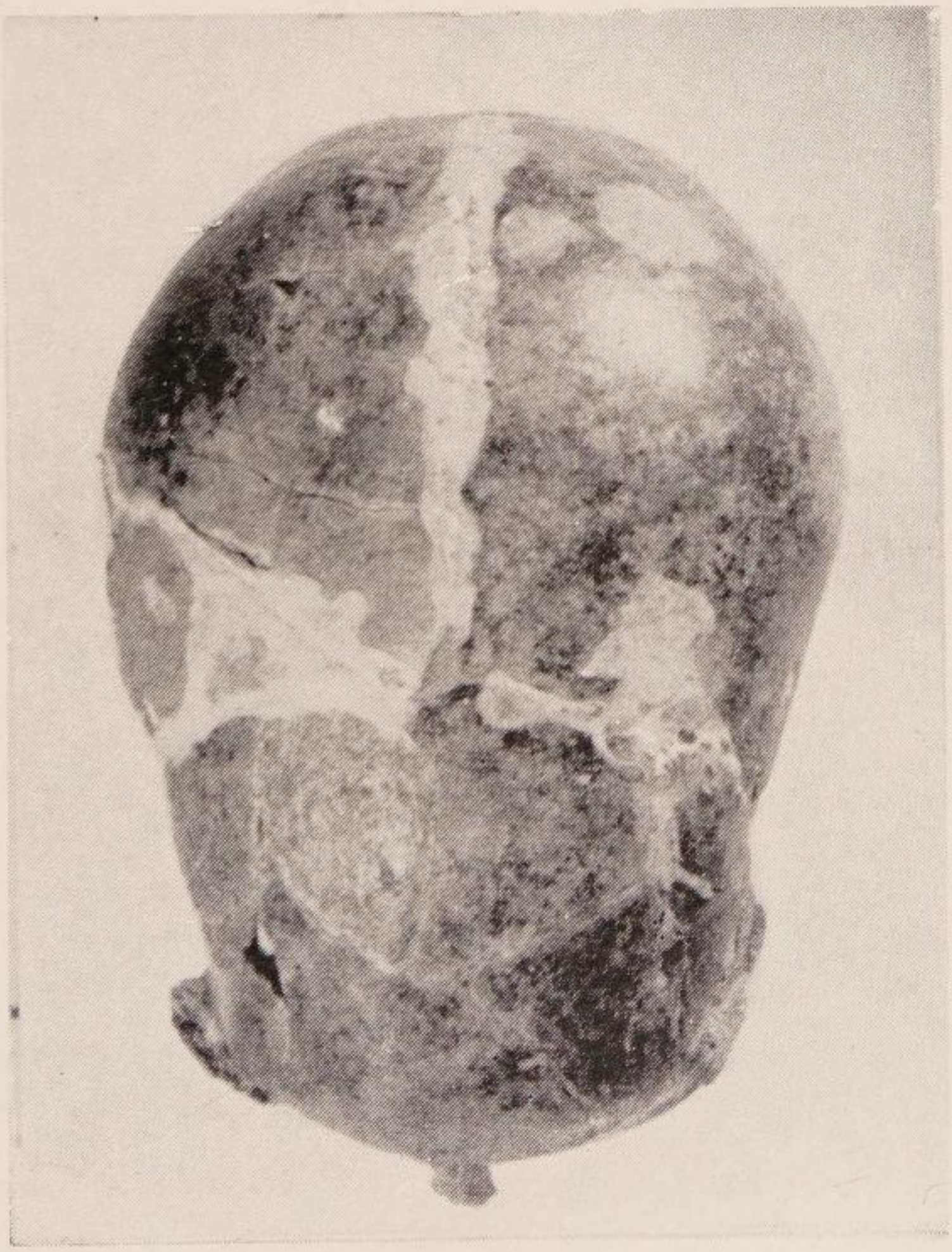


Brahmagiri : Megalith 1, Skull C

Plate XII

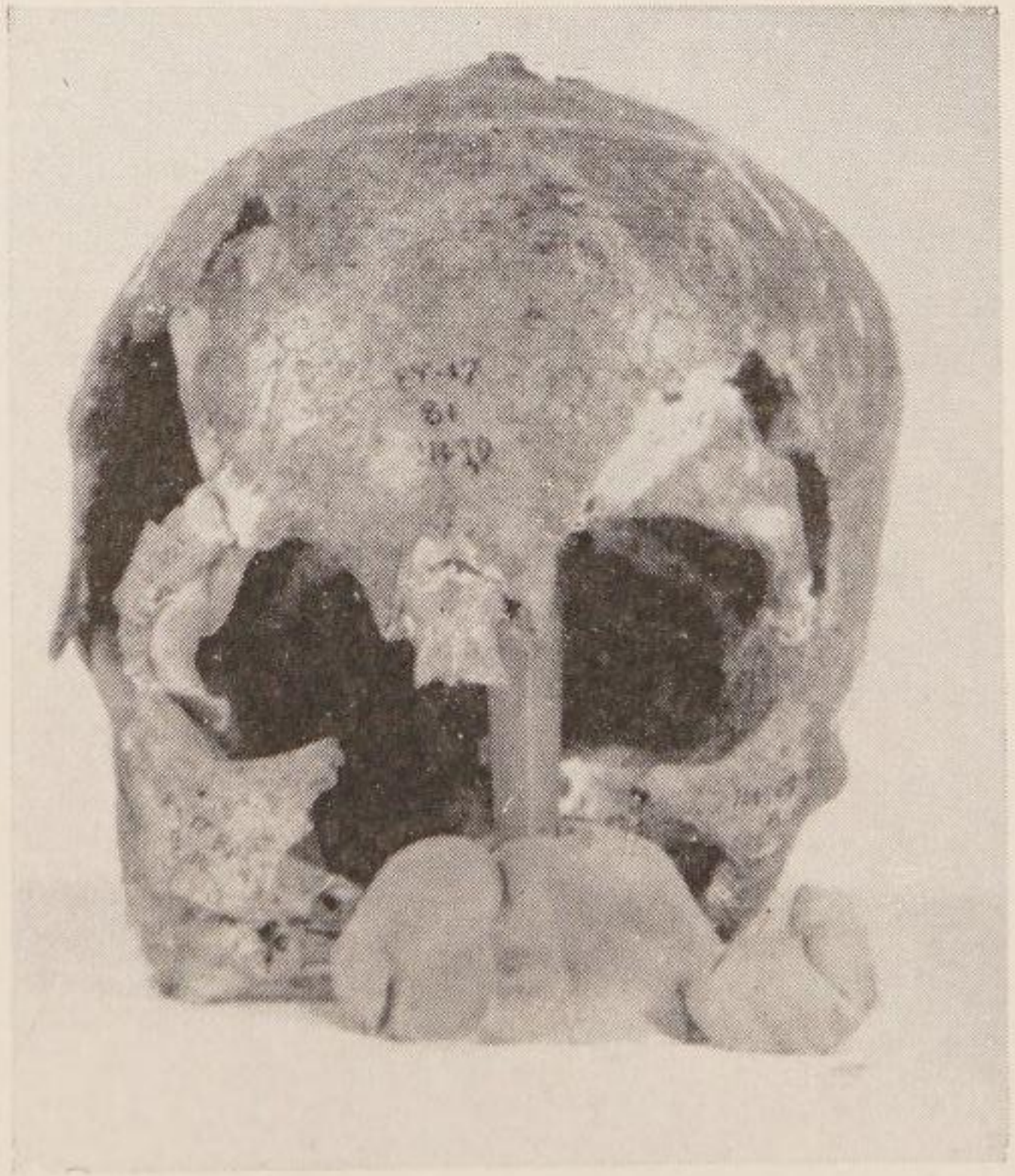
Brahmagiri : Megalith 1, Skull E



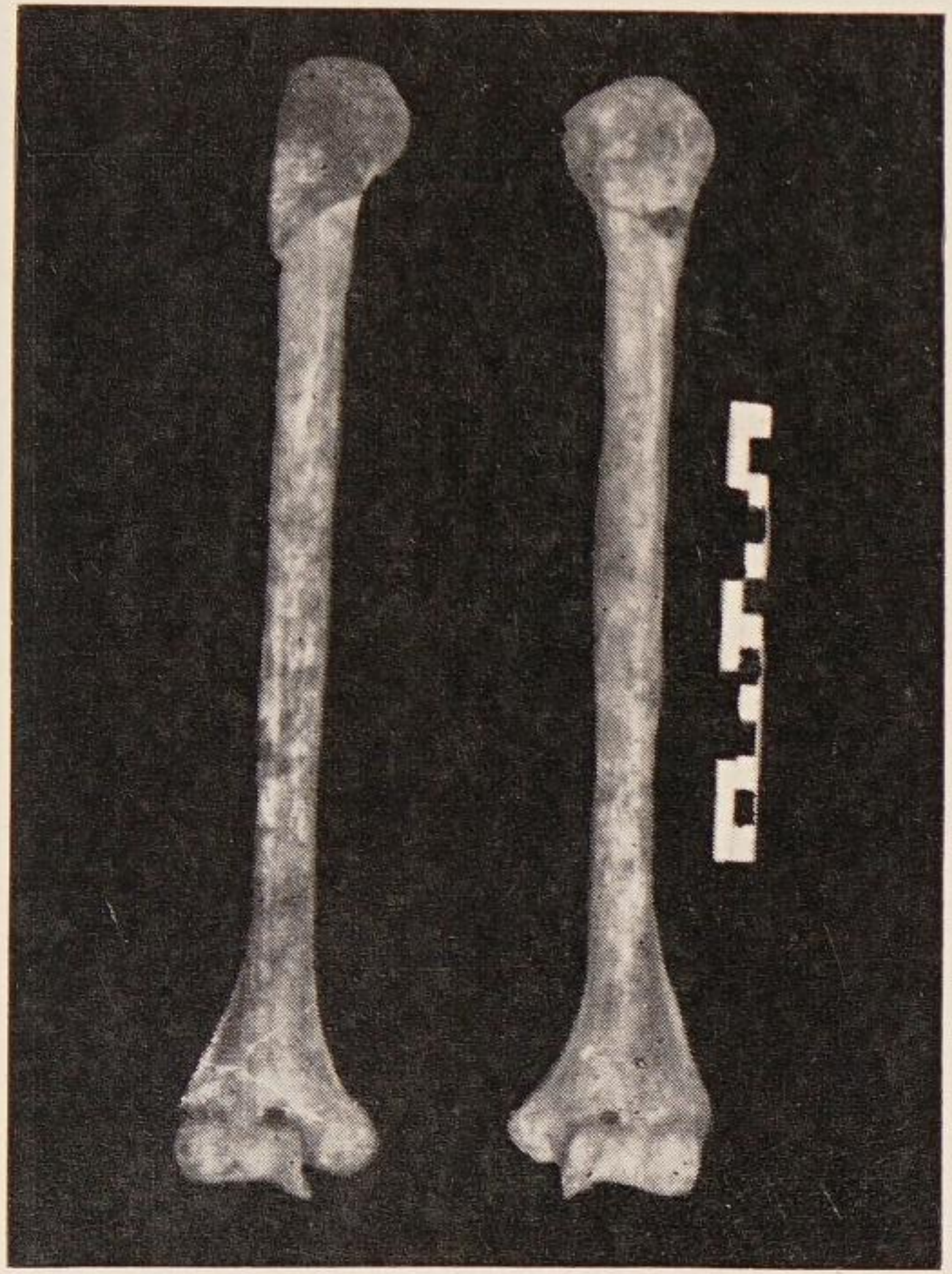


Brahmagiri : Skull from Br. 17 of Stone Axe Culture

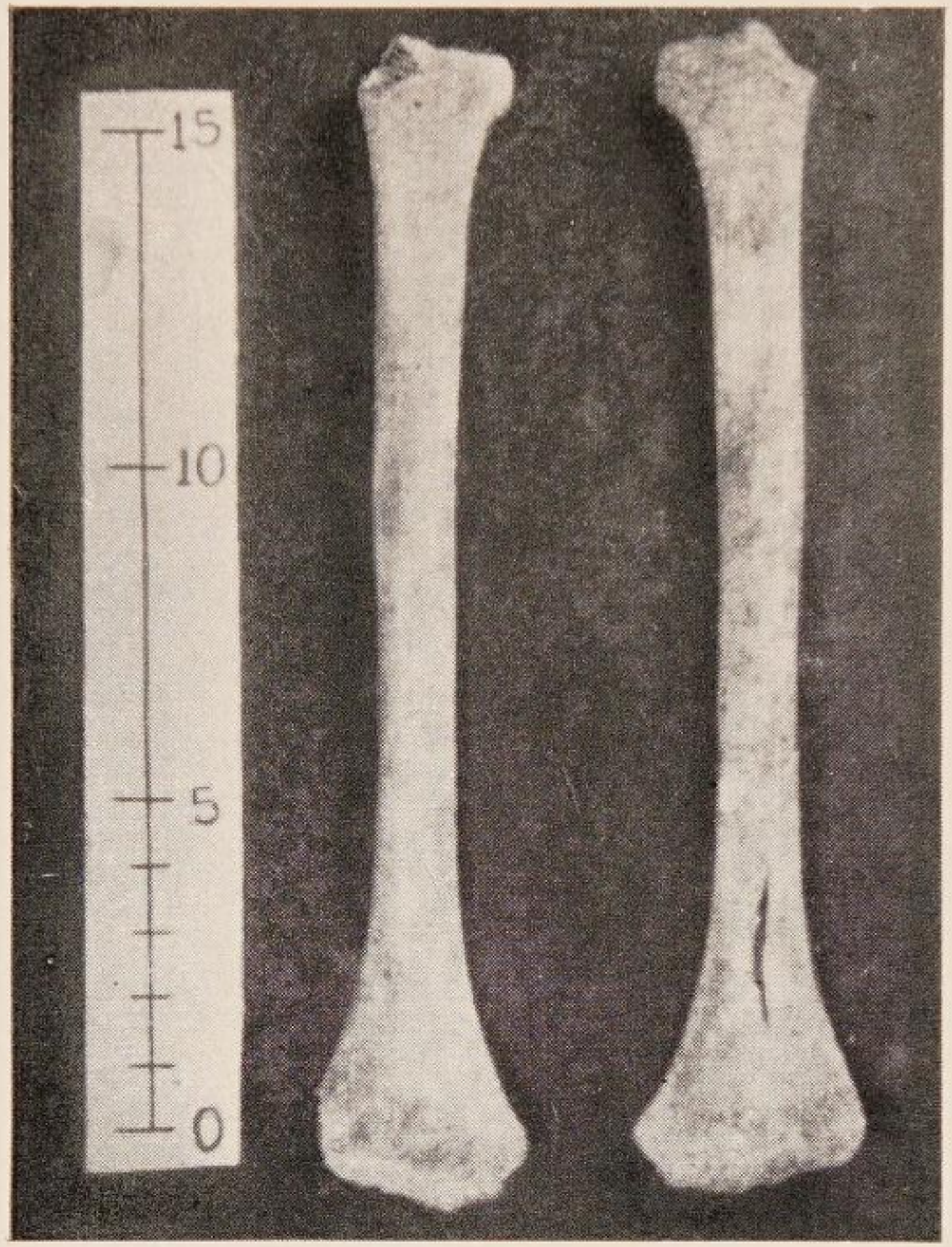
Plate XIV



Brahmagiri : Skull from **Br.** *17 of Stone Axe Culture*

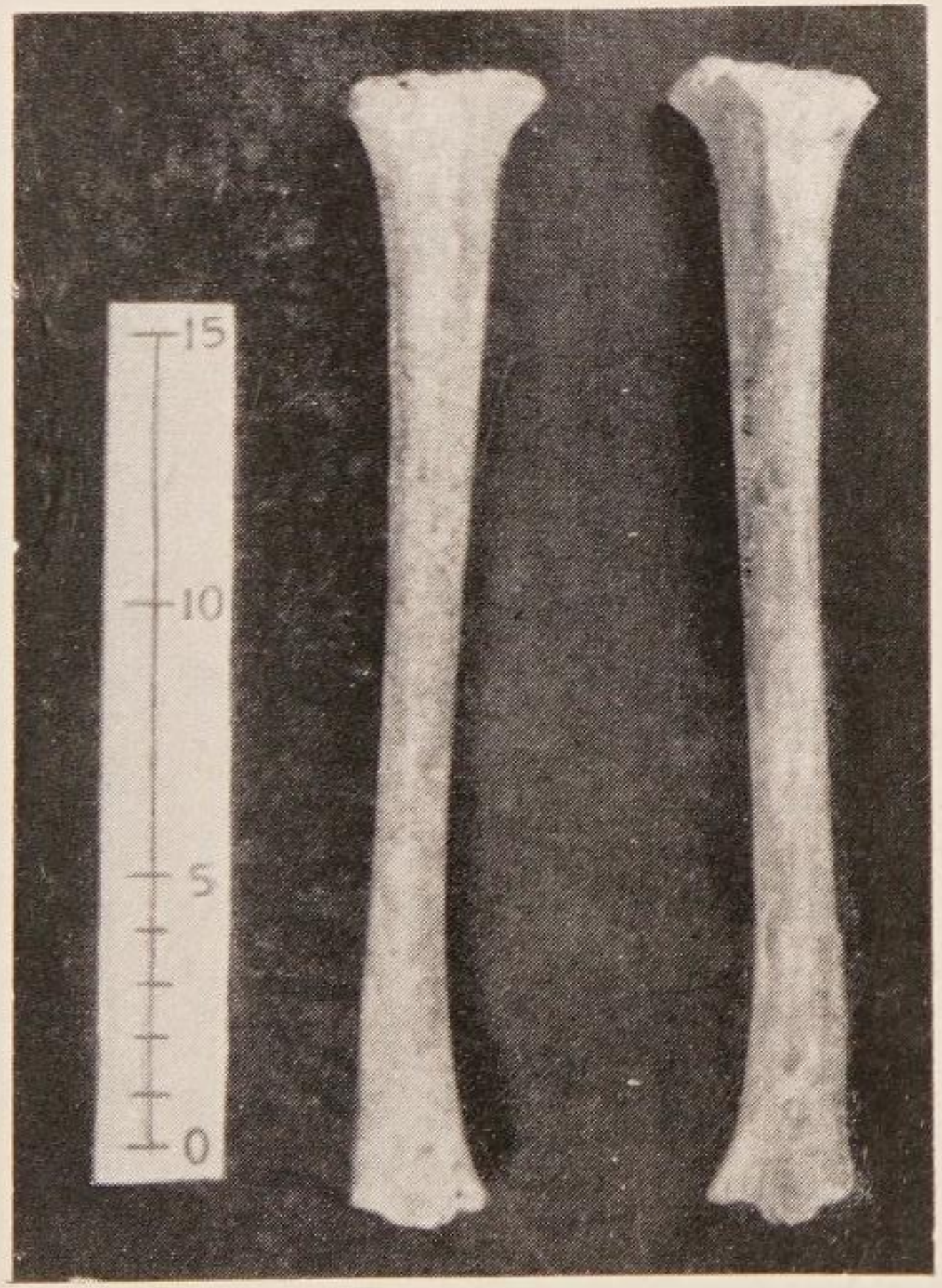


A

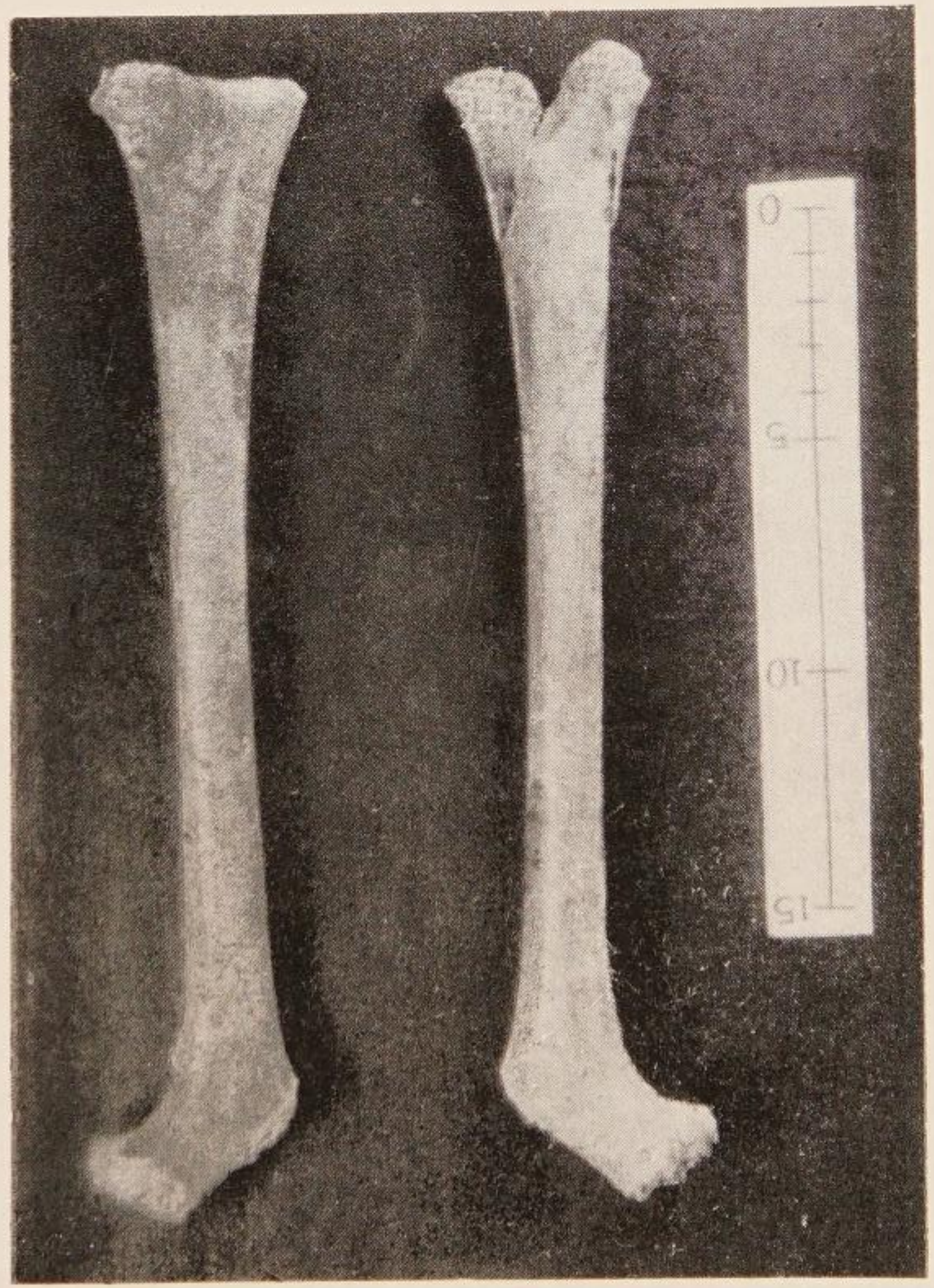


B

A, Piklihal : humerii of skeleton A, and B, Brahmagiri : humerii of skeleton from Br. 17



A



B

Brahmagiri : A, Femora, and B, tibiae from Stone Axe Culture